

**UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
TYLER DIVISION**

FRACTUS, S.A.,

Plaintiff,

vs.

SAMSUNG ELECTRONICS CO., LTD., et al.,
Defendants.

Civil Action No. 6:09-CV-00203 (LED)

**DEFENDANTS SAMSUNG ELECTRONICS CO., LTD.'S; SAMSUNG ELECTRONICS
RESEARCH INSTITUTE'S AND SAMSUNG SEMICONDUCTOR EUROPE GMBH'S
FIRST AMENDED ANSWER; AND SAMSUNG TELECOMMUNICATIONS AMERICA
LLC'S FIRST AMENDED ANSWER AND COUNTERCLAIM TO THE SECOND
AMENDED COMPLAINT OF PLAINTIFF FRACTUS, S.A.**

Defendants Samsung Electronics Co., Ltd.; Samsung Telecommunications America, LLC; Samsung Electronics Research Institute, and Samsung Semiconductor Europe GMBH (collectively, "Samsung" unless otherwise noted), file this First Amended Answer, and Samsung Telecommunications America, LLC files its First Amended Counterclaims to the Second Amended Complaint for Patent Infringement dated December 2, 2009 ("Second Amended Complaint") of Plaintiff Fractus, S.A. ("Fractus").

I. ANSWER

Samsung responds to the allegations in each of the corresponding numbered paragraphs of the Second Amended Complaint below. To the extent the headings of the Second Amended Complaint are construed as allegations, they are each denied.

The Parties

1. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 1, and on that basis denied.

2. Samsung Electronics Co., Ltd. admits that it is a foreign corporation organized and existing under the laws of Korea, with a place of business at 1320-10, Seocho2-dong, Seocho-gu, Seoul, 137-857, Korea. Samsung Telecommunications America, LLC admits that it is a Delaware limited liability company with a place of business at 1301 E. Lookout Drive, Richardson, Texas 75082. Samsung Electronics Research Institute admits that it has a place of business at South Street, Staines, Middlesex TW18 4QE UK. Samsung Semiconductor Europe GMBH admits that it is a foreign corporation organized and existing under the laws of the Germany, with a place of business at Am Kronberger Hang 6, Schwalbach, 65824 Germany. Samsung denies that it is proper to collectively refer to the defendants as “Samsung,” except for convenience of reference. Samsung denies the remaining allegations of Paragraph 2.

3. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 3, and on that basis denied.

4. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 4, and on that basis denied.

5. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 5, and on that basis denied.

6. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 6, and on that basis denied.

7. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 7, and on that basis denied.

8. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 8, and on that basis denied.

9. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 9, and on that basis denied.

10. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 10, and on that basis denied.

11. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 11, and on that basis denied.

Jurisdiction and Venue

12. Samsung admits that this Court has subject matter jurisdiction over Fractus' patent dispute with Samsung, and that venue is proper as to Samsung. Samsung denies all other allegations of Paragraph 12, as to Samsung. As to allegations relating to the remaining defendants, Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 12, and on that basis denied.

U.S. Patent No. 7,015,868

13. Samsung admits that United States Patent No. 7,015,868 ("the '868 Patent") bears on its face March 21, 2006 as its issue date, the '868 Patent indicates on its face "Multilevel Antennae" as its title, and that a document purported to be the '868 Patent is attached to the Second Amended Complaint. Samsung lacks knowledge or information sufficient to form a belief as to whether the plaintiff is the owner by assignment of the '868 Patent, and on that basis the allegation is denied. Samsung denies the remaining allegations of Paragraph 13.

14. Denied.

15. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 15, and on that basis denied.

16. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 16, and on that basis denied.

17. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 17, and on that basis denied.

18. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 18, and on that basis denied.

19. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 19, and on that basis denied.

20. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 20, and on that basis denied.

21. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 21, and on that basis denied.

22. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 22, and on that basis denied.

23. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 23, and on that basis denied.

24. As to Samsung, denied. As to the remaining defendants, Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 24, and on that basis denied.

U.S. Patent No. 7,123,208

25. Samsung admits that United States Patent No. 7,123,208 (“the ’208 Patent”) bears on its face October 17, 2006 as its issue date, the ’208 Patent indicates on its face “Multilevel Antennae” as its title, and that a document purported to be the ’208 Patent is attached

to the Second Amended Complaint. Samsung lacks knowledge or information sufficient to form a belief as to whether the plaintiff is the owner by assignment of the '208 Patent, and on that basis the allegation is denied. Samsung denies the remaining allegations of Paragraph 25.

26. Denied.

27. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 27, and on that basis denied.

28. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 28, and on that basis denied.

29. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 29, and on that basis denied.

30. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 30, and on that basis denied.

31. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 31, and on that basis denied.

32. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 32, and on that basis denied.

33. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 33, and on that basis denied.

34. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 34, and on that basis denied.

35. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 35, and on that basis denied.

36. As to Samsung, denied. As to the remaining defendants, Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 36, and on that basis denied.

U.S. Patent No. 7,148,850

37. Samsung admits that United States Patent No. 7,148,850 (“the ’850 Patent”) bears on its face December 12, 2006 as its issue date, the ’850 Patent indicates on its face “Space-Filling Miniature Antennas” as its title, and that a document purported to be the ’850 Patent is attached to the Second Amended Complaint. Samsung lacks knowledge or information sufficient to form a belief as to whether the plaintiff is the owner by assignment of the ’850 Patent, and on that basis the allegation is denied. Samsung denies the remaining allegations of Paragraph 37.

38. Denied.

39. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 39, and on that basis denied.

40. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 40, and on that basis denied.

41. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 41, and on that basis denied.

42. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 42, and on that basis denied.

43. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 43, and on that basis denied.

44. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 44, and on that basis denied.

45. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 45, and on that basis denied.

46. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 46, and on that basis denied.

47. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 47, and on that basis denied.

48. As to Samsung, denied. As to the remaining defendants, Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 48, and on that basis denied.

U.S. Patent No. 7,202,822

49. Samsung admits that United States Patent No. 7,202,822 (“the ’822 Patent”) bears on its face April 10, 2007 as its issue date, the ’822 Patent indicates on its face “Space-Filling Miniature Antennas” as its title, and that a document purported to be the ’822 Patent is attached to the Second Amended Complaint. Samsung lacks knowledge or information sufficient to form a belief as to whether the plaintiff is the owner by assignment of the ’822 Patent, and on that basis the allegation is denied. Samsung denies the remaining allegations of Paragraph 49.

50. Denied.

51. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 51, and on that basis denied.

52. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 52, and on that basis denied.

53. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 53, and on that basis denied.

54. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 54, and on that basis denied.

55. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 55, and on that basis denied.

56. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 56, and on that basis denied.

57. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 57, and on that basis denied.

58. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 58, and on that basis denied.

59. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 59, and on that basis denied.

60. As to Samsung, denied. As to the remaining defendants, Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 60, and on that basis denied.

U.S. Patent No. 7,312,762

61. Samsung admits that United States Patent No. 7,312,762 (“the ’762 Patent”) bears on its face December 25, 2007 as its issue date, the ’762 Patent indicates on its face “Loaded Antennae” as its title, and that a document purported to be the ’762 Patent is

attached to the Second Amended Complaint. Samsung lacks knowledge or information sufficient to form a belief as to whether the plaintiff is the owner by assignment of the '762 Patent, and on that basis the allegation is denied. Samsung denies the remaining allegations of Paragraph 61.

62. Denied.

63. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 63, and on that basis denied.

64. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 64, and on that basis denied.

65. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 65, and on that basis denied.

66. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 66, and on that basis denied.

67. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 67, and on that basis denied.

68. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 68, and on that basis denied.

69. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 69, and on that basis denied.

70. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 70, and on that basis denied.

71. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 71, and on that basis denied.

72. As to Samsung, denied. As to the remaining defendants, Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 72, and on that basis denied.

U.S. Patent No. 7,394,432

73. Samsung admits that United States Patent No. 7,394,432 (“the ’432 Patent”) bears on its face July 1, 2008 as its issue date, the ’432 Patent indicates on its face “Multilevel Antennae” as its title, and that a document purported to be the ’432 Patent is attached to the Second Amended Complaint. Samsung lacks knowledge or information sufficient to form a belief as to whether the plaintiff is the owner by assignment of the ’432 Patent, and on that basis the allegation is denied. Samsung denies the remaining allegations of Paragraph 73.

74. Denied.

75. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 75, and on that basis denied.

76. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 76, and on that basis denied.

77. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 77, and on that basis denied.

78. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 78, and on that basis denied.

79. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 79, and on that basis denied.

80. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 80, and on that basis denied.

81. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 81, and on that basis denied.

82. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 82, and on that basis denied.

83. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 83, and on that basis denied.

84. As to Samsung, denied. As to the remaining defendants, Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 84, and on that basis denied.

U.S. Patent No. 7,397,431

85. Samsung admits that United States Patent No. 7,397,431 (“the ’431 Patent”) bears on its face July 8, 2008 as its issue date, the ’431 Patent indicates on its face “Multilevel Antennae” as its title, and that a document purported to be the ’431 Patent is attached to the Second Amended Complaint. Samsung lacks knowledge or information sufficient to form a belief as to whether the plaintiff is the owner by assignment of the ’431 Patent, and on that basis the allegation is denied. Samsung denies the remaining allegations of Paragraph 85.

86. Denied.

87. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 87, and on that basis denied.

88. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 88, and on that basis denied.

89. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 89, and on that basis denied.

90. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 90, and on that basis denied.

91. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 91, and on that basis denied.

92. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 92, and on that basis denied.

93. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 93, and on that basis denied.

94. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 94, and on that basis denied.

95. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 95, and on that basis denied.

96. As to Samsung, denied. As to the remaining defendants, Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 96, and on that basis denied.

U.S. Patent No. 7,411,556

97. Samsung admits that United States Patent No. 7,411,556 (“the ’556 Patent”) bears on its face August 12, 2008 as its issue date, the ’556 Patent indicates on its face “Multi-Band Monopole Antenna For a Mobile Communications Device” as its title, and that a document purported to be the ’556 Patent is attached to the Second Amended Complaint. Samsung lacks knowledge or information sufficient to form a belief as to whether the plaintiff is the owner by assignment of the ’556 Patent, and on that basis the allegation is denied. Samsung denies the remaining allegations of Paragraph 97.

98. Denied.

99. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 99, and on that basis denied.

100. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 100, and on that basis denied.

101. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 101, and on that basis denied.

102. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 102, and on that basis denied.

103. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 103, and on that basis denied.

104. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 104, and on that basis denied.

105. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 105, and on that basis denied.

106. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 106, and on that basis denied.

107. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 107, and on that basis denied.

108. As to Samsung, denied. As to the remaining defendants, Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 108, and on that basis denied.

U.S. Patent No. 7,528,782

109. Samsung admits that United States Patent No. 7,528,782 (“the ’782 Patent”) bears on its face May 5, 2009 as its issue date, the ’782 Patent indicates on its face “Multilevel Antennae” as its title, and that a document purported to be the ’782 Patent is attached to the Second Amended Complaint. Samsung lacks knowledge or information sufficient to form a belief as to whether the plaintiff is the owner by assignment of the ’782 Patent, and on that basis the allegation is denied. Samsung denies the remaining allegations of Paragraph 109.

110. Denied.

111. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 111, and on that basis denied.

112. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 112, and on that basis denied.

113. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 113, and on that basis denied.

114. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 114, and on that basis denied.

115. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 115, and on that basis denied.

116. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 116, and on that basis denied.

117. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 117, and on that basis denied.

118. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 118, and on that basis denied.

119. Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 119, and on that basis denied.

120. As to Samsung, denied. As to the remaining defendants, Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 120, and on that basis denied.

Willfulness

121. As to Samsung, denied. As to the remaining defendants, Samsung lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 121, and on that basis denied.

Jury Demand

122. Paragraph 122 does not require a response from Samsung.

Prayer for Relief

Samsung denies that Fractus is entitled to any of the relief sought in Paragraphs (a)-(e) of its prayer for relief against Samsung, and requests that the Court deny all such relief to Fractus in its entirety and with prejudice and that Fractus take nothing.

II. DEFENSES

In further answering Fractus' Second Amended Complaint, Samsung pleads the following defenses and/or affirmative defenses, without admitting that Samsung would bear the burden of proof on any of the following:

Failure to State a Claim

123. The Second Amended Complaint fails to state a claim upon which relief can be granted.

Non-Infringement

124. Samsung has not willfully, intentionally, recklessly, knowingly, or otherwise infringed (literally or by equivalents), induced infringement of, or contributed to the infringement of any valid and enforceable claim of the '868 Patent, the '208 Patent, the '850 Patent, the '822 Patent, the '762 Patent, the '432 Patent, the '431 Patent, the '556 Patent, and/or the '782 Patent, as properly construed. If the claims at issue are interpreted so broadly as to read on any accused product, Samsung has not infringed, induced infringement of, or contributed to the infringement of, any such claim of the patents under the Reverse Doctrine of Equivalents

Invalidity

125. The '868 Patent, the '208 Patent, the '850 Patent, the '822 Patent, the '762 Patent, the '432 Patent, the '431 Patent, the '556 Patent, and/or the '782 Patent are invalid for failure to comply with the statutory requirements of one or more of the provisions in Title 35 of the United States Code, including §§ 101, 102, 103, 112, 116, 119 and/or 120.

Prosecution History Estoppel

126. To the extent that any of Fractus' allegations of infringement are construed or asserted to be allegations of infringement under the judicially-enunciated doctrine of equivalents, on information and belief, all or some of Fractus' claims for relief are barred by the doctrine of prosecution history estoppel.

Laches, Estoppel

127. On information and belief, all or some of Fractus' claims for relief are barred by the doctrines of laches and/or equitable estoppel.

Unclean Hands

128. On information and belief, Fractus' claims for relief are barred due to unclean hands.

Inequitable Conduct

129. On information and belief, one or more of the '868 Patent, the '208 Patent, the '850 Patent, the '822 Patent, the '762 Patent, the '432 Patent, the '431 Patent, the '556 Patent, and the '782 Patent (collectively "the patents-in-suit") are unenforceable due to inequitable conduct of Applicants and/or their patent attorneys and/or others substantively involved in prosecution before the United States Patent & Trademark Office (the "USPTO"). On information and belief, Applicants and/or their patent attorneys and/or others substantively involved in prosecution before the USPTO made misrepresentations and/or failed to disclose material information to the USPTO with the intent to deceive the same.

130. Based on the allegations in Paragraphs 150-158, incorporated herein by reference, the '868 Patent, the '208 Patent, the '432 Patent, the '431 Patent, and the '782 Patent are unenforceable due to inequitable conduct of the Applicants and/or their patent attorneys and/or others substantively involved in the prosecution before the USPTO.

131. Based on the allegations in Paragraphs 156 and 159-168, incorporated herein by reference, the '850 Patent and the '822 Patent are unenforceable due to inequitable conduct of the Applicants and/or their patent attorneys and/or others substantively involved in the prosecution before the USPTO.

132. Based on the allegations in Paragraphs 156 and 169-177, incorporated herein by reference, the '762 Patent and the '556 Patent are unenforceable due to inequitable conduct of the Applicants and/or their patent attorneys and/or others substantively involved in the prosecution before the USPTO

Damages and Costs Limitations

133. On information and belief, Fractus' claims for relief are barred, in whole or in part, for failure to comply with the marking and/or notice provisions of 35 U.S.C. § 287.

134. On information and belief, Fractus' claims for relief are limited by 35 U.S.C. §§ 286 and 287, and Fractus' recovery of costs is limited under 35 U.S.C. § 288.

Miscellaneous

135. Samsung reserves the right to assert any other defenses that discovery may reveal.

III. COUNTERCLAIMS

136. Samsung Telecommunications America, LLC hereby alleges the following Counterclaims against Fractus:

The Parties

137. Counterclaim Plaintiff Samsung Telecommunications America, LLC is a Delaware corporation with a principal place of business in Richardson, Texas.

138. On information and belief, Fractus, S.A. is an foreign corporation with a principal place of business in Barcelona, Spain.

Jurisdiction and Venue

139. Samsung Telecommunications America, LLC's Counterclaim arises under the United States Patent Act, 35 U.S.C. §1 *et seq.*, and the Declaratory Judgment Act, 28 U.S.C.

§§ 2201 and 2202. The Court has subject matter jurisdiction over Samsung Telecommunications America, LLC's Counterclaim pursuant to 28 U.S.C. §§ 1331 and 1338. This Court has personal jurisdiction over Fractus at least by virtue of Fractus' filing of the Second Amended Complaint against Samsung Telecommunications America, LLC in this Court, and venue is proper in this District pursuant to 28 U.S.C. §§ 1391(c) and 1400(b).

COUNT ONE

DECLARATION OF NON-INFRINGEMENT

140. Samsung Telecommunications America, LLC repeats and incorporates by reference the allegations contained in paragraphs 1-139 above as if fully set forth herein.

141. On December 2, 2009, Fractus filed a Second Amended Complaint naming Samsung Telecommunications America, LLC as a defendant.

142. The Second Amended Complaint alleges that Samsung Telecommunications America, LLC infringes U.S. Patent Nos. 7,015,868 ("the '868 Patent"); 7,123,208 ("the '208 Patent"); 7,148,850 ("the '850 Patent"); 7,202,822 ("the '822 Patent"); 7,312,762 ("the '762 Patent"); 7,394,432 ("the '432 Patent"); 7,397,431 ("the '431 Patent"); 7,411,556 ("the '556 Patent"); and 7,528,782 ("the '782 Patent") by its manufacture, use, sale, importation and/or offer for sale of its products, including but not limited to certain mobile phones with internal antennas, and is contributing to and inducing others to manufacture, use, sell, import and/or offer for sale infringing products..

143. Samsung Telecommunications America, LLC has not infringed, contributed to the infringement of, or induced infringement of any valid and enforceable claim of the '868 Patent, the '208 Patent, the '850 Patent, the '822 Patent, the '762 Patent, the '432 Patent, the '431 Patent, the '556 Patent, and/or the '782 Patent.

144. An actual controversy exists between Samsung Telecommunications America, LLC and Fractus regarding Fractus' allegations of infringement of the '868 Patent, the '208 Patent, the '850 Patent, the '822 Patent, the '762 Patent, the '432 Patent, the '431 Patent, the '556 Patent, and the '782 Patent.

145. Pursuant to 28 U.S.C. §§ 2201 and 2202, Samsung Telecommunications America, LLC is entitled to a declaratory judgment that it has not infringed, contributed to the infringement of, or induced infringement of any valid and enforceable claim of the '868 Patent, the '208 Patent, the '850 Patent, the '822 Patent, the '762 Patent, the '432 Patent, the '431 Patent, the '556 Patent, and/or the '782 Patent.

COUNT TWO

DECLARATION OF INVALIDITY

146. Samsung Telecommunications America, LLC repeats and incorporates by reference the allegations contained in paragraphs 1-145 above as if fully set forth herein.

147. One or more of the claims of the '868 Patent, the '208 Patent, the '850 Patent, the '822 Patent, the '762 Patent, the '432 Patent, the '431 Patent, the '556 Patent, and/or the '782 Patent, is invalid for failure to comply with 35 U.S.C. §§ 101, 102, 103, 112, 116, 119 and/or 120.

148. An actual controversy exists between Samsung Telecommunications America, LLC and Fractus regarding the validity of the '868 Patent, the '208 Patent, the '850 Patent, the '822 Patent, the '762 Patent, the '432 Patent, the '431 Patent, the '556 Patent, and the '782 Patent.

149. Pursuant to 28 U.S.C. §§ 2201 and 2202, Samsung Telecommunications America, LLC is entitled to a declaratory judgment that the claims of the '868 Patent, the '208

Patent, the '850 Patent, the '822 Patent, the '762 Patent, the '432 Patent, the '431 Patent, the '556 Patent, and/or the '782 Patent are invalid in part or in whole.

COUNT THREE

**DECLARATION OF UNENFORCEABILITY OF
U.S. PATENT NOS. 7,015,868, 7,123,208, 7,394,432, 7,397,431 AND 7,528,782**

150. Samsung Telecommunications America, LLC repeats and incorporates by reference the allegations contained in paragraphs 1-149 above as if fully set forth herein.

151. One or more of the '868 Patent, the '208 Patent, the '432 Patent, the '431 Patent and/or the '782 Patent are unenforceable due to inequitable conduct.

152. An actual controversy exists between Samsung Telecommunications America, LLC and Fractus regarding the enforceability of the '868 Patent, the '208 Patent, the '432 Patent, the '431 Patent and the '782 Patent.

153. Samsung Telecommunications America, LLC is entitled to a declaratory judgment that the '868 Patent, the '208 Patent, the '432 Patent, the '431 Patent and/or the '782 Patent are unenforceable in part or in whole, for the reasons set forth in the following paragraphs:

Those Having a Duty of Candor and Good Faith in Dealing with the USPTO Presented False Statements to the USPTO and Failed to Correct Such False Statements in the Prosecution of the '868 Patent, the '208 Patent, the '431 Patent, the '432 patent, and the '782 Patent.

154. The '868 Patent, the '208 Patent, the '431 Patent, the '432 patent, and the '782 Patent (these patents and others claiming priority to U.S. Patent Application No. 10/102,568 collectively referred to as the "Multilevel Antenna Patent Family") are unenforceable because Fractus and/or its patent attorneys and/or others substantively involved in the prosecution before the USPTO knowingly presented false information to the USPTO, failed to correct such false statements, and failed to disclose material information to the USPTO as follows:

a. The Multilevel Antenna Patent Family purportedly claims priority to PCT Application No. ES99/00296. On March 29, 2001, an international search report was issued for PCT Application No. ES99/00296, citing, amongst other references, Publication WO 9706578 (listing Cohen as inventor).

b. The first of the U.S. applications for the Multilevel Antenna Patent Family (U.S. Patent Application No. 10/102,568), purportedly claiming priority to PCT Application No. ES99/00296, was filed on March 18, 2002. The following statement concerning Publication WO 9706578 (listing Cohen as inventor) (hereinafter, the “Cohen Statement”) was added to the specification of U.S. Patent Application No. 10/102,568: “Publication WO 97/06578 discloses a fractal antenna, which has nothing to do with a multilevel antenna being both geometries essentially different.” This Cohen Statement was not included in the original PCT Application No. ES99/00296.

c. The Cohen Statement was a false characterization of Publication WO 97/06578. In particular, Publication WO 97/06578 is not limited to only fractal antennas as alleged in the Cohen Statement.

d. For example, on page 24-25 of Publication WO 97/06578, it provides:

Further, it is understood that it suffices if an element according to the present invention is substantially a fractal. A deviation of less than perhaps 10% from a perfectly drawn and implemented fractal will still provide adequate fractal-like performance, based upon actual measurements conducted by applicant.

e. The recitation of the preceding paragraph clarifies that Publication WO 97/06578 also describes antenna elements that are other than fractal.

f. Therefore, according to the preceding two subparagraphs, the Cohen Statement is a material misrepresentation.

g. The inventors of the Multilevel Antenna Patent Family include Carles Puente Baliarda, Carmen Borja Borau, Jaume Anguera Pros, and Jordi Soler Castany (hereinafter, the “Fractus Multilevel Inventor Group.”). The Fractus Multilevel Inventor Group owed a duty of candor and good faith in dealing with the USPTO.

h. After the Cohen Statement was added to the specification of the first of the U.S. applications (U.S. Patent Application No. 10/102,568) for the Multilevel Antenna Patent Family, the inventors of the Fractus Multilevel Inventor Group acknowledged the presence of the Cohen Statement. Specifically, on April 9, 2002 the Fractus Multilevel Inventor Group signed a declaration for U.S. Patent Application No. 10/102,568 (of the Multilevel Antenna Patent Family, which included the Cohen Statement) indicating “I hereby state that I have reviewed and understand the contents of the above-identified specification.” Therefore, by signing the declaration of April 9, 2002, the inventors of the Fractus Multilevel Inventor Group were informing the USPTO that they understood the specification, including the Cohen Statement.

i. The April 9, 2002 Declaration signed by the inventors further stated: “I acknowledge the duty to disclose information which is material to the examination of the application.” Accordingly, the inventors of the Fractus Multilevel Inventor Group acknowledged their duty of candor and good faith in dealing with the USPTO.

j. Upon information and belief, one or more of the Fractus Multilevel Inventor Group knew the Cohen Statement was false, indicating as much in a communication with the EPO for a different Fractus application (EP application no. 909089.5), to which the Fractus United States Patent Application No. 10/182,635, filed in the U.S. on November 1, 2002, and all the patents and applications claiming priority therefrom, including the ‘850 Patent and the

‘822 Patent (collectively referred to as the “Space Filling Miniature Patent Family”) claim priority.

k. Specifically, on August 14, 2003, for EP application no. 909089.5, an argument was made in attempts to distinguish Publication WO 97/06578 (listing Cohen as inventor) from claims of Fractus’ European space-filling curve application. Upon information and belief, one or more of the Fractus Multilevel Inventor Group provided the information for this argument for submission to the EPO. The argument was as follows (emphasis added):

Any real object that approaches a fractal shape is no longer a fractal. Owing to such a vague definition of the term fractal, it is impossible to determine in [Publication WO 97/06578] what is really described and what is the different with other prior art antennas.

Further confusion in the antenna geometries is introduced in pp. 24-25 (lines 35 to 4) of [Publication WO 97/06578]. The author states that “a deviation of less than perhaps 10% from a perfectly drawn and implemented fractal will still provide adequate fractal-like performance”. ***This implies that the definition of ‘fractal’ used in said patent is different from the common definition of fractal***, since any fractal curves features an infinite length any of the drawings or descriptions described in patent [Publication WO 97/06578] deviate by far more than a 10% with respect to an infinite length.

l. The above recitation illustrates that one or more of the Fractus Multilevel Inventor Group specifically recognized that Publication WO 97/06578 was not limited to only fractal antennas, as alleged in the Cohen Statement. Rather, one or more of the Fractus Multilevel Inventor Group specifically recognized that Publication WO 97/06578 allowed the so-called fractal antennas to deviate by 10% from a so-called fractal. Accordingly, one or more of the Fractus Multilevel Inventor Group recognized that Publication WO 97/06578 disclosed shapes other than fractal shapes.

m. Despite specifically arguing that Publication WO 97/06578 did not disclose only fractal antennas as indicated in the preceding subparagraph, one or more of the Fractus Multilevel Inventor Group continued to rely on the false Cohen Statement. Specifically,

after making the arguments contrary to the Cohen Statement described in the preceding subparagraph, one or more of the Fractus Multilevel Inventor Group acknowledged the Cohen Statement again (“Publication WO 97/06578 discloses a fractal antenna, which has nothing to do with a multilevel antenna being both geometries essentially different.”). Specifically, in a Declaration dated October 28, 2004 for U.S. Patent Application No. 10/963,080 (of the Multilevel Antenna Patent Family, which included the Cohen Statement), the inventors signed another declaration stating “I hereby state that I have reviewed and understand the contents of the above identified specification . . . I acknowledge the duty to disclose information which is material to the patentability as defined in 37 C.F.R. 1.56 . . .”

n. The intent to deceive the USPTO is apparent. Despite knowledge by one or more of the Fractus Multilevel Inventor Group that the Cohen Statement was false, the October 28, 2004 Declaration for U.S. Application No. 10/963,080 was still signed. Moreover, every patent in the Multilevel Antenna Patent Family not only claims priority to U.S. Application No. 10/963,080, but also additionally includes the false Cohen Statement.

o. Further recognition by Fractus of the false nature of the Cohen Statement is apparent. In a subsequent application that is not part of the Multilevel Antenna Patent Family, the Cohen Statement was modified to explain that:

The international publication WO 97/06578 entitled fractal antennas, resonators and loading elements, *describe fractal-shaped elements* which may be used to form an antenna.

(See e.g., the ‘762 Patent, Emphasis added).

p. This new language allows for “other than fractal variation” described above for Cohen and recognized by one or more of the Fractus Multilevel Inventor Group. Upon information and belief, the above language was specifically changed because one

or more of the Fractus Multilevel Inventor Group and/or their Patent Attorneys knew the Cohen Statement was false.

q. Upon information and belief, due to a concern about the Publication WO 97/06578 (listing Cohen as inventor), the Cohen Statement was specifically added for the U.S. prosecution with the intent that the USPTO would rely on such a statement, and not apply Publication WO 97/06578 (listing Cohen as inventor) to reject the claims. Upon information and belief, the false Cohen Statement misdirected United States patent examiners from considering what Cohen actually taught or disclosed.

r. The materiality of the Cohen Statement is apparent. Even though the USPTO did not use Publication WO 97/06578 (listing Cohen as inventor) to reject claims in the United States prosecution of the Multilevel Antenna Patent Family, the EPO specifically used Publication WO 97/06578 in the European prosecution of the foreign counterpart of the Multilevel Antenna Patent Family to reject claims.

s. The intent to deceive the USPTO is also apparent. Notwithstanding the specific knowledge that the Cohen Statement was false as evidenced by the modified Cohen Statement used in other Fractus applications, one or more of the Fractus Multilevel Inventor Group continued to use the false Cohen Statement in application after application of the Multilevel Antenna Patent Family.

t. Because the Fractus Multilevel Inventor Group knowingly presented this false statement to the USPTO with an intent that the USPTO would rely on such a statement, the patents in the Multilevel Antenna Patent Family are unenforceable due to inequitable conduct. Further, the failure to correct this knowingly false statement is also a separate basis for a finding of inequitable conduct.

Those Having a Duty of Candor and Good Faith in Dealing with the USPTO Improperly Falsified Inventorship To Exclude An Inventor in the Prosecution of the '868 Patent, the '208 Patent, the '431 Patent, the '432 patent, and the '782 Patent.

155. The Multilevel Antenna Patent Family is additionally unenforceable because Applicants and/or their patent attorneys and/or others substantively involved in prosecution before the USPTO knowingly falsified inventorship to exclude a true inventor, Professor Jordi Romeu Robert, from the Multilevel Antenna Patent Family, with an intent to deceive the USPTO as follows:

a. The Multilevel Antenna Patent Family purportedly claims priority to PCT Application No. ES99/00296, filed on September 20, 1999. At the time the application was filed, all of the named inventors were either professors or doctoral students at Universitat Politecnica de Catalunya (“UPC”), a technical university in Barcelona, Spain. The named inventors at the time of filing included Professor Jordi Romeu Robert, Carles Puente Baliarda, Carmen Borja Borau, Jaume Anguera Pros, and Jordi Soler Castany.

b. On information and belief, UPC was heavily involved in antenna research, and had previously filed patent applications disclosing subject matter similar to that in Fractus PCT Application No. ES99/00296.

c. Professor Romeu had co-authored more than 20 papers with Carles Puente Baliarda, Carmen Borja Borau, Jaume Anguera Pros, and/or Jordi Soler Castany relating to antennas. Professor Romeu is also named as a joint inventor with Carles Puente Baliarda on at least Spanish Patent ES2112163, entitled “Antenas Fractales O Multifractales” (translated, “Fractal and Multifractal Antennas”), the application for which was filed on May 19, 1995 and which issued on March 16, 1998.

d. The abstract of Spanish Patent ES2112163 refers at least to an antenna consisting of a conductor or superconductor material characterized by each of its parts

having the same and/or similar form to the overall structure of the object, but at a different level of scale.

e. Figs. 2-4 of Spanish Patent ES2112163 are examples of multilevel antennas, as those are described in the Multilevel Antenna Patent Family.

f. The subject matter of Spanish Patent ES2112163 is similar to the subject matter of the Multilevel Antenna Patent Family.

g. Additionally, as evidenced in the prosecution of applications in the Multilevel Antenna Patent Family, ES2112163 discloses the majority of the claim limitations in certain claims of applications in the Multilevel Antenna Patent Family. As an example, as discussed in other subparagraphs herein, the USPTO asserted and Fractus did not traverse the USPTO's assertions that ES2112163 discloses the below highlighted limitations of Claim 1 of the '868 Patent:

1. A multi-band antenna including at least one multilevel structure wherein the multilevel structure comprises a set of polygonal or polyhedral elements heaving the same number of sides or faces, wherein each of said elements is electromagnetically coupled to at least one other of said elements either directly through at least one point of contact or through a small separation providing coupling, wherein for at least 75% of said polygonal or polyhedral elements, the region or area of contact between said polygonal or polyhedral elements is less than 50% of the perimeter or area of said elements, and wherein not all the polygonal or polyhedral elements have the same size and the perimeter of the multilevel structure has a different number of sides than the polygons that compose the multilevel structure.

(See e.g., 5-26-2004 Office Action Response for the '568 Application).

h. Rather, as indicated herein, one or more of the inventors in the Fractus Multilevel Inventor Group, individuals in the Multilevel Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO including, but not

limited to, David Maiorana of Jones Day argued that the new claims were novel over ES2112163 Application because:

The '163 application also does not teach or suggest the claimed invention because *the elements disclosed in the antennas of the '163 application are all the same size* (e.g., the dark triangles in Figs. 3 and 9 of the /163 application). The white areas shown in Figures 3 and 9 of the '163 application are the empty spaces between the black triangle-shaped element.

(5-26-2004 Office Action Response for the '568 Application at 7, Emphasis added).

i. Professor Romeu is also named as a joint inventor with Carles Puente Baliarda, Carmen Borja Borau and Jaume Anguera Pros on at least Spanish Patent ES2142280, entitled "Unas antenas multitriangulares duales para telefonía celular GSM y DCS" (translated, "Dual multi-triangular antennas for GSM and DCS cellular telephony"), the application for which was filed on May 6, 1998 and which issued on November 16, 2000.

j. The subject matter of Spanish Patent ES2142280 is similar to the subject matter of the Multilevel Antenna Patent Family.

k. Additionally, ES2142280 discloses the majority of the claim limitations in certain claims of applications in the Multilevel Antenna Patent Family. As an example, ES2142280 discloses the below highlighted limitations of Claim 1 of the '868 Patent:

1. A multi-band antenna including at least one multilevel structure wherein the multilevel structure comprises a set of polygonal or polyhedral elements having the same number of sides or faces, wherein each of said elements is electromagnetically coupled to at least one other of said elements either directly through at least one point of contact or through a small separation providing coupling, wherein for at least 75% of said polygonal or polyhedral elements, the region or area of contact between said polygonal or polyhedral elements is less than 50% of the perimeter or area of said elements, and wherein not all the polygonal or polyhedral elements have the same size and the perimeter of the multilevel structure has a different number of sides than the polygons that compose the multilevel structure.

l. Furthermore, Professor Romeu is also named as a joint inventor, along with Carles Puente Baliarda, of PCT Application No. ES99/00343.

m. On information and belief, Fractus was founded in 1999 by Carles Puente Baliarda and others (collectively, the “Fractus Founders”). Further on information and belief, Professor Romeu was one of the Fractus Founders.

n. On information and belief, one of Fractus’ goals was to commercialize fractal antennas (such as those described in the Multilevel Antenna Patent Family and Space Filling Miniature Patent Family), based on its belief that “the space-filling and multi-level properties of Fractus’ technology enable Fractus to achieve increased antenna performance and/or reduced antenna size with optimum multi-band functionality.” (Fractus Website, <http://www.fractus.com/main/fractus/corporate/>).

o. On information and belief, in or around 1999, UPC purportedly transferred patent rights to Fractus, including for patents relating to fractal antennas.

p. On information and belief, Professor Romeu maintained an interest in continuing his research outside of his employ at Fractus. In September of 2000, Professor Romeu started FractalComs, a consortium of organizations (including UPC and other universities in Spain, Italy, and Switzerland) interested in researching the use of fractal antennas in telecommunications.

q. On information and belief, Professor Romeu left Fractus some time in or around 2000-2001.

r. On information and belief, relations between Professor Romeu, FractalComs and UPC on the one hand, and Fractus on the other, thereafter became strained. In

or around 2001, an employee or representative of Fractus sent a letter to Professor Romeu and/or others at FractalComs informing FractalComs that Fractus purportedly owned intellectual property rights in fractal antennas, along with the registered trademark for “Fractal Antennas.”

s. In 2003, after Professor Romeu had left Fractus, he published a paper with two co-authors who were also students and/or professors at UPC, entitled “Are Space-Filling Curves Efficient Small Antennas?” (IEEE Antennas and Wireless Propagation Letters, Vol. 2, 2003) (the “Romeu Paper”). The paper concluded that the behavior of space-filling curves as antennas “is not exceptional when compared with other intuitively-generated antennas.” The research that formed the basis for the Romeu Paper (the “Romeu Paper Research”), which began at least as early as 2002, further concluded that “space-filling prefractal antennas are not suitable to design efficient miniature antennas,” that “fractal dimension seems not to play a role in the behavior of the antennas as experiences with prefractals with the same fractal dimension show,” and finally that “other intuitively generated Euclidean configurations perform better than prefractal structures with the same size-reduction ratios [], and even admit more degrees of freedom for the antenna designer.”

t. Ultimately, the Romeu Paper concluded that the very sorts of antenna geometries that Fractus claims in another patent family, which relates to space filling curves, and which claims to be superior in their designs, are actually no better than any other antenna geometries that a typical antenna designer might choose.

u. On information and belief, in or around early 2002, at the time that Professor Romeu was conducting the Romeu Paper Research, Fractus made a decision to remove Professor Romeu as an inventor in the Multilevel Antenna Patent Family.

v. For example, in an April 10, 2002 letter, Francisco Carpintero Lopez of Herrero & Asociados (Fractus' foreign patent attorneys) sent a letter to the European Patent Office seeking entry into the national phase in Europe, and therein sought to remove Professor Romeu as an inventor in PCT Application No. ES99/00296 and its corresponding national stage equivalents:

Please be informed that, by an involuntary error, Mr. Jordi ROMEU ROBERT was erroneously designated as inventor. The International Bureau (WIPO) was notified accordingly and we are enclosing herewith the official notification (Form PCT/IB/306) that we have received from the WIPO where you can see that said change has been registered.

w. On information and belief, Professor Romeu should properly have remained a named inventor on the applications in the Multilevel Antenna Patent Family.

x. In particular, as referenced above, given that the two Spanish Patents (ES2112163 and ES2142280) on which Professor Romeu is listed as an inventor disclosed the overwhelming majority of the claim limitations of certain claims of applications in the Multilevel Antenna Patent Family (e.g., as shown in the preceding subparagraphs) and given that Professor Romeu studied and wrote multiple papers on this topic as evidenced by Fractus' production discussed below, it would be difficult for an ordinary observer of these factual scenarios to allege that Professor Romeu was not an inventor.

y. On or around June 7, 2002, in Application No. 10/102,568 of the Multilevel Antenna Patent Family, attorney Harris A. Wolin filed in the USPTO on behalf of Fractus (1) copies of documents "deleting Mr. Jordi Romeu Robert as an inventor," and (2) the declaration of inventors Carles Puente Baliarda, Carmen Borja Borau, Jaume Anguera Pros, and Jordi Soler Castany acknowledging their duty of candor and attesting to the fact that they were

the joint (and only) inventors of the claimed subject matter, and which declaration included a place for Professor Romeu's signature (which was left blank):

Full name of sole or first inventor <u>PUENTE BALIARDA CARLES</u>		Date <u>9 April 2002</u>
Inventor's Signature <u>[Signature]</u>		Citizenship <u>SPANISH</u>
Residence <u>SPAIN</u>		
Post Office Address <u>Alcalde Barnils s/n Ed. TESTA mòd. C3ª Pte Emp. San Joan Despí 08190 SANT CUGAT DEL VALLES (Barcelona)</u>		

Full name of second joint inventor, if any <u>ROMEU ROBERT JORDI</u>		Date <u>9 April 2002</u>
Second Inventor's Signature <u>[Signature]</u>		Citizenship <u>SPANISH</u>
Residence <u>SPAIN</u>		
Post Office Address <u>CRER MANILA 47 08034 (BARCELONA)</u>		

Full name of third joint inventor, if any <u>BORJA BORAU CARMEN</u>		Date <u>9 April 2002</u>
Third Inventor's Signature <u>[Signature]</u>		Citizenship <u>SPANISH</u>
Residence <u>SPAIN</u>		
Post Office Address <u>TVRA DE DALT 67 08024 (BARCELONA)</u>		

Full name of fourth joint inventor, if any <u>ANGUERA PROS JAUME</u>		Date <u>9 April 2002</u>
Fourth Inventor's Signature <u>[Signature]</u>		Citizenship <u>SPANISH</u>
Residence <u>SPAIN</u>		
Post Office Address <u>PSSG BLASCO IBANEZ 15 12500 (VIMAROS)</u>		

Full name of fifth joint inventor, if any <u>SOLER CASTANY JORDI</u>		Date <u>9 April 2002</u>
Fifth Inventor's Signature <u>[Signature]</u>		Citizenship <u>SPANISH</u>
Residence <u>SPAIN</u>		
Post Office Address <u>FRAY LUIS DE LEON 21 08302 (MATARO)</u>		

z. However, one or more of Harris A. Wolin, Carles Puente Baliarda, Carmen Borja Borau, Jaume Anguera Pros, and Jordi Soler Castany knew that Professor Romeu was also a true inventor of the claimed subject matter in Application No. 10/102,568, and thus knew that the declaration of inventorship was false.

aa. Fractus' own documents demonstrate that Professor Romeu was a true inventor of those claimed inventions and was improperly removed. These include the documents produced by Fractus in this action and identified pursuant to P.R. 3-2(b) as purportedly supporting the conception, reduction to practice, design, and development of the claimed inventions, the majority of which identify Professor Romeu as a contributor. For example, a document produced by Fractus in this case bearing the Bates numbers FRAC-00000624-659, which apparently relates to the inventions in the Multilevel Antenna Patent Family, identifies Professor Romeu as a contributor. Additionally, a document produced by

Fractus bearing the Bates numbers FRAC-035-00002924-938 is a presentation identifying and/or given in part by Professor Romeu relating to purportedly “Novel Multilevel” antenna configurations, and which references in a footnote PCT Application No. ES99/00296 and identifies Professor Romeu as an inventor thereon.

bb. On or around December 8, 2004, in the application that issued as the ‘868 Patent of the Multilevel Antenna Patent Family, Fractus’ patent attorney Brian Walker of Howison & Arnott, LLP, or others owing a duty of candor and good faith to the USPTO, likewise filed in the USPTO the declaration of inventors Carles Puente Baliarda, Carmen Borja Borau, Jaume Anguera Pros, and Jordi Soler Castany acknowledging their duty of candor and attesting to the fact that they were the joint (and only) inventors of the claimed subject matter.

cc. However, one or more of Brian Walker, Carles Puente Baliarda, Carmen Borja Borau, Jaume Anguera Pros, Jordi Soler Castany and/or others having a duty of candor and good faith to the USPTO knew that Professor Romeu was also a true inventor of the claimed subject matter in the ‘868 Patent, and thus knew that the declaration of inventorship was false.

dd. On or around March 8, 2005, in the application that issued as the ‘208 Patent of the Multilevel Antenna Patent Family, Fractus’ patent attorney Brian Walker of Howison & Arnott, LLP, or others having a duty of candor and good faith to the USPTO, likewise filed in the USPTO the declaration of inventors Carles Puente Baliarda, Carmen Borja Borau, Jaume Anguera Pros, and Jordi Soler Castany acknowledging their duty of candor and good faith and attesting to the fact that they were the joint (and only) inventors of the claimed subject matter.

ee. However, one or more of Brian Walker, Carles Puente Baliarda, Carmen Borja Borau, Jaume Anguera Pros, Jordi Soler Castany and/or others having a duty of candor and good faith to the USPTO knew that Professor Romeu was also a true inventor of the claimed subject matter in the '208 Patent, and thus knew that the declaration of inventorship was false.

ff. On or around July 12, 2005, in the application that issued as the '431 Patent of the Multilevel Antenna Patent Family, Fractus' patent attorney Brian Walker of Howison & Arnott, LLP, or others having a duty of candor and good faith to the USPTO, likewise filed in the USPTO the declaration of inventors Carles Puente Baliarda, Carmen Borja Borau, Jaume Anguera Pros, and Jordi Soler Castany acknowledging their duty of candor and good faith and attesting to the fact that they were the joint (and only) inventors of the claimed subject matter.

gg. However, one or more of Brian Walker, Carles Puente Baliarda, Carmen Borja Borau, Jaume Anguera Pros, Jordi Soler Castany and/or others having a duty of candor and good faith to the USPTO knew that Professor Romeu was also a true inventor of the claimed subject matter in the '431 Patent, and thus knew that the declaration of inventorship was false.

hh. On or around October 17, 2006, in the application that issued as the '432 Patent of the Multilevel Antenna Patent Family, Fractus' patent attorney Brian Walker of Howison & Arnott, LLP, or others having a duty of candor and good faith to the USPTO, likewise filed in the USPTO the declaration of inventors Carles Puente Baliarda, Carmen Borja Borau, Jaume Anguera Pros, and Jordi Soler Castany acknowledging their duty of candor and

good faith and attesting to the fact that they were the joint (and only) inventors of the claimed subject matter.

ii. However, one or more of Brian Walker, Carles Puente Baliarda, Carmen Borja Borau, Jaume Anguera Pros, Jordi Soler Castany and/or others having a duty of candor and good faith to the USPTO knew that Professor Romeu was also a true inventor of the claimed subject matter in the '432 Patent, and thus knew that the declaration of inventorship was false.

jj. On or around July 20, 2007, in the application that issued as the '782 Patent of the Multilevel Antenna Patent Family, Fractus' patent attorney Brian Walker of Howison & Arnott, LLP, or others having a duty of candor and good faith to the USPTO, likewise filed in the USPTO the declaration of inventors Carles Puente Baliarda, Carmen Borja Borau, Jaume Anguera Pros, and Jordi Soler Castany acknowledging their duty of candor and good faith and attesting to the fact that they were the joint (and only) inventors of the claimed subject matter.

kk. On information and belief, one or more of Francisco Carpintero Lopez, Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Carmen Borja Borau, Jaume Anguera Pros, and Jordi Soler Castany discussed and shared prosecution strategies amongst one another in the prosecution of Fractus patent applications, and made a decision to remove Professor Romeu as an inventor even though Professor Romeu contributed to the claimed inventions in the Multilevel Antenna Patent Family.

ll. However, one or more of Brian Walker, Carles Puente Baliarda, Carmen Borja Borau, Jaume Anguera Pros, Jordi Soler Castany and/or others having a duty of

candor and good faith to the USPTO knew that Professor Romeu was also a true inventor of the claimed subject matter in the '782 Patent, and thus knew that the declaration of inventorship was false.

mm. On information and belief, the decision to remove Professor Romeu as an inventor was made: (1) in view of Professor Romeu's and/or FractalComs' and/or UPC's diverging interests from Fractus; (2) in view of patent ownership issues; and/or (3) to obscure the Romeu Paper Research and/or other material information in Professor Romeu's possession from the USPTO in several other Fractus patent applications relating to space-filling curves.

nn. On information and belief, Professor Romeu was omitted from the Multilevel Antenna Patent Family with deceptive intent, and the above-referenced declarations filed with the USPTO in the Multilevel Antenna Patent Family were executed and/or filed with an intent to deceive the USPTO. The intent to deceive the USPTO by one or more of Harris A. Wolin, Brian Walker, Carles Puente Baliarda, Carmen Borja Borau, Jaume Anguera Pros, Jordi Soler Castany and/or others having a duty of candor is apparent based on the facts set forth herein above.

oo. The omission of a true inventor with deceptive intent was a material omission because it involved the filing of false oaths/declarations.

pp. As a result, the patents in the Multilevel Antenna Patent Family are unenforceable due to inequitable conduct.

Those Having a Duty of Candor and Good Faith in Dealing with the USPTO Withheld United States Patent No. 4,608,572 and Rejections Based Thereupon, Received in an Application for United States Patent No. 7,486,242, in the Prosecution of the ‘431 Patent, the ‘432 Patent, the ‘782 Patent, the ‘822 Patent, the ‘556 Patent, and the ‘762 Patent.

156. U.S. Patent Nos. 7,431 (the “‘431 Patent”); 7,394,432 (the “‘432 Patent”); 7,528,782 (the “‘782 Patent”); 7,202,822 (the “‘822 Patent”); 7,411,556 (the “‘556 Patent”); and 7,312,762 (the “‘762 Patent”) are unenforceable because Applicants and/or their patent attorneys and/or others substantively involved in prosecution before the USPTO knowingly withheld with an intent to deceive highly material information received in a related Fractus application as follows:

a. At different points in time, at least Joseph Sauer of Jones Day, Stanley Moore of Jenkins & Gilchrist (and later Winstead P.C.), Jeffrey Tinker of Winstead P.C., and Shoaib Mithani of Jenkins & Gilchrist (and later Winstead P.C.), prosecuted at least the application leading to U.S. Patent No. 7,486,242 (the ‘242 Patent).

b. One or more of Carles Puente Baliarda and Jordi Soler Castany were listed as inventors on one or more of the following patents: the ‘431 Patent, the ‘432 Patent, the ‘782 Patent, the ‘822 Patent, the ‘556 Patent, the ‘762 Patent, and the ‘242 Patent. Additionally, upon information and belief, one or both of Carles Puente Baliarda and Jordi Soler Castany were substantively involved in the prosecution of the applications leading to the ‘431 Patent, the ‘432 Patent, the ‘782 Patent, the ‘822 Patent, the ‘556 Patent, the ‘762 Patent, and the ‘242 Patent. Accordingly, each of Carles Puente Baliarda and Jordi Soler Castany had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose material information to the USPTO for each of the ‘431 Patent, the ‘432 Patent, the ‘782 Patent, the ‘822 Patent, the ‘556 Patent, and the ‘762 Patent.

c. The '431 Patent, the '432 Patent, the '782 Patent, the '822 Patent, the '556 Patent, the '762 Patent, and the '242 Patent are related because all include or included claims directed to a "multilevel structure," a "space-filling structure," or related claim elements such as a "multi-segment curve," a "space-filling curve," or a "structure including at least two levels of detail."

d. Upon information and belief, "multilevel structure" and a "structure including at least two levels of detail" were used by Fractus to describe the same concept.

e. Upon information and belief, "space-filling structure," "space-filling curve" and "multi-segment curve" were used by Fractus to describe the same concept.

f. The application leading to the '242 Patent was being examined by Examiner Michael Wimer. The applications leading to the '431 Patent, the '432 Patent, and the '782 Patent were being examined by Examiner Tho Phan. The application leading to the '822 Patent was being examined by Examiner Hoang Nguyen. The application leading to the '556 Patent was being examined by Examiner Tan Ho. The application leading to the '762 Patent was being examined by Examiner Michael Wimer.

g. Because of the relatedness of the claims as set forth above, the examiners of the applications leading to the '431 Patent, the '432 Patent, the '782 Patent, the '822 Patent, the '556 Patent, and the '762 Patent would have wanted to know of the rejections issued and/or the references applied by Examiner Wimer in Examiner Wimer's examination of the application leading to the '242 Patent.

h. On March 12, 2007, in the prosecution of the application leading to the '242 Patent, Examiner Wimer of the USPTO issued an office action (addressed to Jenkins &

Gilchrist, PC), which was received by one or more of Stanley Moore and Shoaib Mithani and which rejected pending Claim 2 under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 4,608,572 (the ‘572 Patent). Claim 2 included the “multilevel structure” and “space-filling structure” limitations.

i. The ‘572 Patent issued on August 26, 1986. The ‘432; ‘431, and ‘782 Patents claim priority to September 20, 1999. The ‘822 Patent claims priority to January 19, 2000. The ‘556 Patent claims priority to December 22, 2002. The ‘762 claims priority to October 16, 2001. Thus, the ‘572 Patent qualifies as prior art to the ‘432, ‘431, ‘782, ‘822, ‘556, and ‘762 Patents pursuant to 35 U.S.C. §102(b).

j. On May 22, 2007, the correspondence address for the application leading to the ‘242 Patent was changed to Winstead Sechrest & Minick P.C. Upon information and belief, each of Stanley Moore and Shoaib Mithani changed firms from Jenkins & Gilchrist to Winstead Sechrest & Minick P.C.

k. On August 6, 2007, in response to Examiner Wimer’s rejection in the application leading to the ‘242 Patent, Shoaib Mithani of Winstead P.C. amended various claims, including Claim 2 which recited the “multilevel structure” and “space-filling structure” limitations, and made various arguments in an attempt to overcome the 35 U.S.C. §112 and 35 U.S.C. §102(b) rejections.

l. On October 30, 2007, in the prosecution of the application leading to the ‘242 Patent, Examiner Wimer issued a final office action (addressed to Winstead PC), which was received by one or more of Stanley Moore, Shoaib Mithani, and Jeffrey Tinker. Examiner Wimer’s rejection informed one or more of Stanley Moore, Shoaib Mithani, and Jeffrey Tinker that he maintained the rejection of Claim 2, which included the “multilevel

structure” and “space-filling structure” limitations, pursuant to 35 U.S.C. §102(b) in view of the ‘572 Patent.

m. One or more of Stanley Moore, Shoaib Mithani, and Jeffrey Tinker of Winstead P.C. and/or one or both of Carles Puente Baliarda and Jordi Soler Castany recognized the materiality of the ‘572 Patent to claims with the “multilevel structure” and the “space-filling structure” features. Specifically, on December 28, 2007, in response to Examiner Wimer’s final office action in the application leading to the ‘242 Patent, Jeffrey Tinker of Winstead P.C. canceled Claim 2.

n. One or more of Joseph Sauer of Jones Day, and Stanley Moore, Ross Robinson, and Shoaib Mithani of Jenkins & Gilchrist, PC and later of Winstead P.C., were identified as Fractus’ Patent Attorney and/or Patent Agent, and were substantively involved with the prosecution of the ‘556 Patent. As a result, Joseph Sauer of Jones Day, and Stanley Moore, Ross Robinson, and Shoaib Mithani of Jenkins & Gilchrist, PC and later of Winstead P.C., each had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose material information to the USPTO in the prosecution of Fractus patent applications, including the application leading to the ‘556 Patent.

o. The ‘556 Patent did not issue until August 12, 2008. Therefore, one or more individuals with a duty of candor and good faith in dealing with the USPTO in the application leading to the ‘556 Patent, including without limitation Stanley Moore and Shoaib Mithani of Winstead P.C., and Carles Puente Baliarda, had numerous opportunities to disclose the ‘572 Patent and Examiner Wimer’s rejections in the application leading to the ‘242 Patent to Examiner Ho in the prosecution of the ‘556 Patent. However, each of these individuals withheld this information from Examiner Ho.

p. One or more of David Maiorana and Joseph Sauer of Jones Day, and Stanley Moore, Ross Robinson, and Shoaib Mithani of Jenkins & Gilchrist, PC and later of Winstead P.C., were identified as Fractus' Patent Attorney and/or Patent Agent, and were substantively involved with the prosecution of the '762 Patent. As a result, David Maiorana and Joseph Sauer of Jones Day, and Stanley Moore, Ross Robinson, and Shoaib Mithani of Jenkins & Gilchrist, PC and later of Winstead P.C., each had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose material information to the USPTO in the prosecution of Fractus patent applications, including the application leading to the '762 Patent.

q. The '762 Patent did not issue until December 25, 2007. Therefore, one or more individuals with a duty of candor and good faith in dealing with the USPTO in the application leading to the '762 Patent, including without limitation Stanley Moore and Shoaib Mithani of Winstead P.C., Carles Puente Baliarda, and Jordi Soler Castany, had numerous opportunities to disclose the '572 Patent and Examiner Wimer's rejections in the application leading to the '242 Patent to Examiner Wimer in the prosecution of the '762 Patent. However, each of these individuals withheld this information from Examiner Wimer.

r. Brian Walker of Howison & Arnott, LLP was identified as Fractus' Patent Attorney and was substantively involved with the prosecution of the '432, '431, '782, and '822 Patents. As a result, Mr. Walker had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose material information to the USPTO in the prosecution of Fractus patent applications, including the applications leading to the '432, '431, '782, and '822 Patents.

s. The '431 Patent did not issue until July 8, 2008. The '432 Patent did not issue until July 1, 2008. The '782 Patent did not issue until May 5, 2009. Thus, one or

more individuals with a duty of candor and good faith in dealing with the USPTO in the applications leading to the '431, '432, and '782 Patents, including without limitation Carles Puente Baliarda and Jordi Soler Castany, had numerous opportunities to disclose the '572 Patent and Examiner Wimer's rejections in the application leading to the '242 Patent to Examiner Phan in the prosecution of the '431, '432, and '782 Patents. However, each of these individuals withheld this information from Examiner Phan.

t. The '822 Patent did not issue until April 10, 2007. Thus, one or more individuals with a duty of candor and good faith in dealing with the USPTO in the applications leading to the '822 Patent, including without limitation Carles Puente Baliarda, had numerous opportunities to disclose the '572 Patent and Examiner Wimer's rejections in the application leading to the '242 Patent to Examiner Nguyen in the prosecution of the '822 Patent. However, each of these individuals withheld this information from Examiner Nguyen.

u. As identified in the above subparagraphs, the '572 Patent and the rejections based thereupon (received in the prosecution of the application leading to the '242 Patent) were highly material to claims of the '432, '431, '782, '822, and '762 Patents.

v. As identified in the above subparagraphs, the intent to deceive the USPTO and the Examiners examining the applications leading to the '432, '431, '782, '822, and '762 Patents by one or more of the individuals with a duty of candor and good faith in dealing with the USPTO in the applications leading to the '432, '431, '782, '822, and '762 Patents is also apparent.

w. Any inequitable conduct that occurred in the applications leading to the '432, '431, '782, '822, and '762 Patents spreads to subsequent applications (e.g.,

continuation, continuation-in-part, divisional applications, etc.) that claim priority to these applications.

Those Having a Duty of Candor and Good Faith in Dealing with the USPTO Intentionally Withheld A Material Reference, The Puente Dissertation, in the Prosecution of the '868 Patent, the '208 Patent, the '431 Patent, the '432 patent, and the '782 Patent.

157. The Multilevel Antenna Patent Family is additionally unenforceable because Applicants and/or their patent attorneys and/or others substantively involved in the prosecution before the USPTO violated a duty of candor and good faith in dealing with the USPTO as follows:

a. At different points in time, at least Joseph Sauer of Jones Day, David Maiorana of Jones Day, and Brian Walker of Howison & Arnott, LLP prosecuted one or more of the applications in the Multilevel Antenna Patent Family (these individuals collectively referred to as the “Multilevel Prosecution Group”).

b. The individuals in the Multilevel Prosecution Group owed a duty of candor and good faith in dealing with the USPTO in the prosecution of applications in the Multilevel Antenna Patent Family.

c. Carles Puente Baliarda of the Fractus Multilevel Inventor Group is identified as the author of a “Ph.D. Dissertation” entitled “Fractal Antennas” (FRACTUSFH010608 - FRACTUSFH010888, hereinafter referred to as the “Puente Dissertation” or “Puente’s Dissertation”).

d. The Puente Dissertation bears a publication date of May 1997 — more than two years prior to the earliest alleged priority date of the Multilevel Antenna Patent Family.

e. The Puente Dissertation was not disclosed to the USPTO in the prosecution of U.S. Patent Application No. 10/102,568 (the “‘568 Application”) and U.S. Patent Application No. 10/963,080 (the “‘080 Application,” which issued as the ‘868 Patent).

f. Upon information and belief, one or more of the inventors in the Fractus Multilevel Inventor Group, individuals in the Multilevel Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO was aware of or had possession of the Puente Dissertation during the prosecution of the ‘568 Application and/or the ‘080 Application.

g. Carles Puente Baliarda of the Fractus Multilevel Inventor Group was aware of the Puente Dissertation because he authored it.

h. Inventors in the Fractus Multilevel Inventor Group were aware of or had possession of the Puente Dissertation because at various points in time, during the prosecution of the applications in the Multilevel Antenna Patent Family, they cited the Puente Dissertation in papers they authored.

i. Example papers citing the Puente Dissertation that are authored by one or more of the inventors in the Fractus Multilevel Inventor Group include, but are not limited to:

- *Broadband Triple-Frequency Microstrip Patch Radiator Combining a Dual-Band Modified Sierpinski Fractal and a Monoband Antenna*; Anguera, J.; Martinez-Ortigosa, E.; Puente, C.; Borja, C.; Soler, J.; *Antennas and Propagation, IEEE Transactions on*, Volume: 54 , Issue: 11 , Part: 2; 2006 , Page(s): 3367 - 3373.
- *The Fractal Hubert Monopole: A Two-Dimensional Wire*, Anguera; J. Puente, C. Martinez, E. Rozan, E.; *MICROWAVE AND OPTICAL TECHNOLOGY LETTERS*; 2003, VOL 36; PART 2, pages 102-104.
- *The Koch Monopole: A Small Fractal Antenna*: Baliarda, C. P. Romeu, J. Cardama, A.; *IEEE TRANSACTIONS ON ANTENNAS AND PROPAGATION*; 2000, VOL 48; PART 11, pages 1773-1781

- *MOD-P SIERPINSKI FRACTAL MULTIBAND ANTENNA*; Soler, J. Romeu, J. Puente, C.; PROCEEDINGS OF THE INTERNATIONAL SYMPOSIUM ON ANTENNAS AND PROPAGATION JAPAN; 2000, VOL 3, pages 1075-1078.
- *Iterative network models to predict the performance of Sierpinski fractal antennas and networks*; Borja, C.; Puente, C.; Antennas and Propagation Society International Symposium, 1999. IEEE; 1999 , Page(s): 652 - 655 vol.1.

j. One or more of the inventors in the Fractus Multilevel Inventor Group, individuals in the Multilevel Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO withheld the Puente Dissertation from the USPTO in the prosecution of the '568 Application and/or the '080 Application.

k. In the prosecution of the '568 Application, the Patent Examiner rejected all the claims as being anticipated by ES2112163, which includes the following figure:



l. Carles Puente Baliarda of the Fractus Multilevel Inventor Group is listed as an inventor of ES2112163.

m. Upon information and belief, one or more of the inventors in the Fractus Multilevel Inventor Group and/or others owing a duty of candor and good faith in dealing with the USPTO were in communication with one or more of the individuals in the Multilevel Prosecution Group on prosecution strategies for the Multilevel Antenna Patent Family. For

example, upon information and belief, Carles Puente Baliarda was in communication with one or more of the individuals in the Multilevel Prosecution Group on prosecution strategies for applications in the Multilevel Antenna Patent Family at least because Carles Puente Baliarda was also heavily involved in the prosecution of foreign European counterparts of the Multilevel Antenna Patent Family.

n. In response to the anticipation rejection based on ES2112163 in the ‘568 Application, one or more of the inventors in the Fractus Multilevel Inventor Group, individuals in the Multilevel Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO including, but not limited to, David Maiorana of Jones Day had all the claims cancelled (Claims 1-21) and provided new claims (Claims 22-59) in the ‘568 Application.

o. The new claims (Claims 22-59) referenced in the preceding subparagraph all included at least the following new limitation: “wherein not all the polygonal or polyhedral elements have the same size.”

p. With the new claims referenced in the preceding subparagraphs, one or more of the inventors in the Fractus Multilevel Inventor Group, individuals in the Multilevel Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO including, but not limited to, David Maiorana of Jones Day argued that the new claims were novel over the ‘163 Application:

The '163 application also does not teach or suggest the claimed invention because ***the elements disclosed in the antennas of the ‘163 application are all the same size*** (e.g., the dark triangles in Figs. 3 and 9 of the /163 application). The white areas shown in Figures 3 and 9 of the ‘163 application are the empty spaces between the black triangle-shaped element.

(5-26-2004 Office Action Response for the ‘568 Application at 7, Emphasis added).

q. While arguments in the preceding subparagraph were being made, one or more of the inventors in the Fractus Multilevel Inventor Group, individuals in the Multilevel

Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO knew of the existence of other undisclosed prior art that taught “polygonal” elements of a multilevel antenna that were not all the “same size.” Examples include the following from the Puente Dissertation:

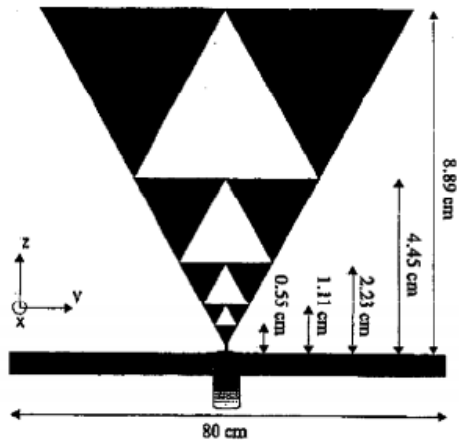


Fig. 5.30 The Parany antenna.

(Page 200 of the Puente Dissertation, FRACTUSFH 010819).

r. The withheld Puente Dissertation contained information that refutes or is inconsistent with arguments made concerning patentability of the claims in the ‘568 Application. Therefore, it is material to the prosecution of the applications in the Multilevel Antenna Patent Family.

s. In response to the representation by one or more of the inventors in the Fractus Multilevel Inventor Group, individuals in the Multilevel Prosecution Group, and/or

others owing a duty of candor and good faith in dealing with the USPTO that the point of novelty of the invention lay in elements not being the “same size” in conjunction with not having been provided the Puente Dissertation, the Examiner of the ‘568 Patent Application decided to allow the ‘568 Patent Application.

t. With the above actions, deceptive intent can be inferred. Here, Carles Puente Baliarda was intimately familiar with own dissertation, the Puente Dissertation. Further, Carles Puente Baliarda presented arguments that were inconsistent with the teachings of the withheld Puente Dissertation. These presented arguments and amended claims formed the “point of novelty” that resulted in a United States patents examiner deciding to allow the ‘568 Application.

u. In the ‘080 Application, a continuation of the ‘568 Application, over 600 other references were provided to the USPTO, but the Puente Dissertation was again withheld.

v. The ‘080 Application issued as the ‘868 Patent on March 21, 2006, almost nine years after the Puente Dissertation was published. Thus, one or more of the inventors in the Fractus Multilevel Inventor Group, individuals in the Multilevel Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO had numerous opportunities to disclose the Puente Dissertation in the ‘080 Application.

w. One or more of the inventors in the Fractus Multilevel Inventor Group, individuals in the Multilevel Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO buried the Examiner with over 600 other references, but continued to withhold the highly material Puente Dissertation through issuance of the ‘080 Application as the ‘868 Patent.

x. Additionally, the Puente Dissertation is material to the patentability of the claims in the Multilevel Antenna Patent Family because it anticipates or renders obvious one or more claims of those patents.

y. By intentionally withholding the Puente Dissertation, and/or by advancing arguments in favor of patentability that contained, as the primary distinguishing element, a feature that that was not disclosed in any of the prior art before the examiner, but was readily apparent in the undisclosed Puente Dissertation, one or more of the inventors in the Fractus Multilevel Inventor Group, individuals in the Multilevel Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO sought to obtain allowance of claims that would not otherwise be allowable over the Puente Dissertation.

z. One or more of the inventors in the Fractus Multilevel Inventor Group, individuals in the Multilevel Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO violated their duty of candor by withholding the Puente Dissertation from the USPTO in the prosecution of applications of the Multilevel Patent Family.

aa. One or more of the inventors in the Fractus Multilevel Inventor Group, individuals in the Multilevel Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO violated their duty of candor by advancing arguments that were inconsistent with the teachings of the Puente Dissertation in the prosecution of applications of the Multilevel Patent Family.

bb. One or more of the inventors in the Fractus Multilevel Inventor Group, individuals in the Multilevel Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO violated their duty of candor by pursuing claims that they knew

were invalid over undisclosed prior art such as, but not limited to, the Puente Dissertation, in applications of the Multilevel Patent Family.

cc. Any inequitable conduct that occurred in the '568 Application or the '080 Application, or any of the applications leading to patents in the Multilevel Patent Family, spread to children that claimed priority to such applications. Accordingly, such children applications are also unenforceable due to inequitable conduct.

158. Based on the allegations in Paragraph 150-157 and their subparagraphs, incorporated herein by reference, the '868 Patent, the '208 Patent, the '431 Patent, the '432 patent, and the '782 Patent are unenforceable due to inequitable conduct of Applicants and/or their patent attorneys and/or others substantively involved in the prosecution before the USPTO.

COUNT FOUR

DECLARATION OF UNENFORCEABILITY OF U.S. PATENT NOS. 7,148,850 AND 7,202,822

159. Samsung Telecommunications America, LLC repeats and incorporates by reference the allegations contained in paragraphs 1-158 above as if fully set forth herein.

160. One or both of the '850 Patent and the '822 Patent are unenforceable due to inequitable conduct.

161. An actual controversy exists between Samsung Telecommunications America, LLC and Fractus regarding the enforceability of the '850 Patent and the '822 Patent.

162. Samsung Telecommunications America, LLC is entitled to a declaratory judgment that the '850 Patent and/or the '822 Patent are unenforceable in part or in whole, for the reasons set forth in the following paragraphs:

Those Having a Duty of Candor and Good Faith in Dealing with the USPTO Withheld United States Patent No. 5,363,114 and Rejections Based Thereupon, Received in an Application for

United States Patent No. 7,511,675, in the Prosecution of the '850 Patent, the '822 Patent, and the Parent Application of the '850 Patent and the '822 Patent

163. The '850 Patent and the '822 Patent are unenforceable because Applicants and/or their patent attorneys and/or others substantively involved in prosecution before the USPTO knowingly withheld with an intent to deceive highly material information received in a related Fractus application as follows:

a. The applications leading to the '850 Patent and the '822 Patent are children of United States Patent Application No. 10/182,635, filed in the U.S. on November 1, 2002 (the '635 Patent Application) (the '635 Patent Application, and all the patents and applications claiming priority therefrom, including the '850 Patent and the '822 Patent, as noted above, collectively referred to as the "Space Filling Miniature Patent Family").

b. As discussed below, information was withheld from all of the applications in the Space Filling Miniature Patent Family. This information was material to claims in all of the applications in the Space Filling Miniature Patent Family.

c. David Maiorana and Joseph Sauer of the Jones Day law firm were identified as Fractus' Patent Attorneys and were substantively involved in the prosecution of the Space Filling Miniature Patent Family. Both Mr. Maiorana and Mr. Sauer worked in the Cleveland office of Jones Day. Additionally, upon information and belief, Mr. Maiorana and Mr. Sauer discussed and shared prosecution strategies amongst one another in the prosecution of multiple Fractus patent applications, including the applications in the Space Filling Miniature Patent Family. As a result, Mr. Maiorana and Mr. Sauer had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose material information to the USPTO in the prosecution of Fractus patent applications, including the applications in the Space Filling Miniature Patent Family.

d. David Maiorana of Jones Day and Joseph Sauer of Jones Day prosecuted at least the following two “space-filling curve” applications for Fractus: the ‘635 Patent Application and another application leading to U.S. Patent No. 7,511,675 (the ‘675 Patent).

e. Each of Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros were listed as inventors on each and every one of the following applications/patents: the ‘675 Patent, the ‘850 Patent, the ‘822 Patent, and the ‘635 Patent Application. Additionally, upon information and belief, one or more of Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros were substantively involved in one or more of the prosecution of the applications leading to the ‘675 Patent, the ‘635 Patent Application, the ‘850 Patent and the ‘822 Patent. Each of Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose material information to the USPTO for each of the ‘635 Patent Application and the applications leading to the ‘675 Patent, the ‘850 Patent, and the ‘822 Patent.

f. The application leading to the ‘675 Patent, the ‘635 Patent Application, the ‘850 Patent and the ‘822 Patent are related because all include or included claims directed towards a “space-filling curve” and a “box-counting dimension” (which Applicants sometimes referred to as a “grid-dimension” or a “grid dimension curve” – where the “grid-dimension” is greater than one). The following are non-limiting examples:

‘675 Patent: In the application as filed, Claims 1-71 included a “space-filling curve” feature whereas Claims 72-74 included a “grid dimension curve” feature. “Grid dimension curve” was defined in the ‘675 Specification as follows: “[f]or the purposes of this application, the term grid dimension curve is used to describe a curve geometry having a grid dimension that is greater than one (1).”

‘635 Patent Application: In the application as filed, independent Claims 1 and 14 and their dependent claims included a “space-filling curve” feature, and

independent Claim 2 and its dependent claims recited that “said SFC features a box-counting dimension greater than one.”

‘850 Patent: In a preliminary amendment, Claims 1-16 were cancelled (which correspond to the originally filed claims in the ‘635 Patent Application) and Claims 17-106 were added. All of Claims 17-106 included a “space-filling curve” feature. Additionally, at least independent Claims 17, 64, 87 and their dependent claims further included a box-counting dimension feature.

‘822 Patent: In a preliminary amendment, Claims 1-16 were cancelled (which correspond to the originally filed claims in the ‘635 Patent Application) and Claims 17-73 were added. Of these claims, at least independent Claim 55 included a “multi-segment curve” feature and further recited that “the multi-segment curve has a box-counting dimension greater than one.”

g. Upon information and belief, “grid dimension” and “box-counting dimension” were interchangeably used by Fractus to describe the same concept. Specifically, “box-counting dimension” was used in earlier applications. However, as described in further detail below with regards to difficulties encountered by Fractus in a European application, Fractus subsequently changed this term to “grid dimension” in later applications. As described above, the “grid dimension curve” claim feature was defined in the ‘675 Patent specification as follows: “a curve geometry having a grid dimension that is greater than one.”

h. Upon information and belief, Fractus treated the “multi-segment curve” claim feature as a similar feature to the “space-filling curve” claim feature.

i. One or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros recognized the relatedness of the ‘635 Patent Application to the application leading to the ‘675 Patent.

j. As an example of the preceding subparagraph, David Maiorana of Jones Day filed the exact same Information Disclosure Statement (“IDS”) on more than one occasion in each of the ‘635 Patent Application and the application leading to the ‘675 Patent.

On March 15, 2004, David Maiorana of Jones Day filed these two identical IDSs respectively in the '635 Patent Application and the application leading to the '675 Patent (application leading to the '675 Patent on the left and the '635 Patent Application on the right):

FORM PTO-1449 (Modified) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		Atty Docket No.: 131273600002	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary)		Serial No.: 10422,578	
(37 CFR 1.98(b))		Applicant(s): Puente-Balardo et al.	
		Filing Date: April 24, 2003	
		Group: Not Yet Assigned	
U.S. PATENT DOCUMENTS			
Exam. Init.	Patent Number	Issue Date	Patentee
	5 4 5 3 7 5 1	09/26/1995	Takamitsu et al.
	5 4 9 5 2 6 1	02/23/1996	Baker et al.
	5 3 3 4 8 7 7	01/09/1996	Sorbellio et al.
	6 0 9 1 3 6 5	07/18/2000	Demeryd et al.
	6 2 1 1 8 2 4	04/02/2001	Hilden et al.
	6 5 2 3 6 9 1	02/25/2003	Vanden et al.
FOREIGN PATENT OR PUBLISHED FOREIGN PATENT APPLICATION			
Exam. Init.	Document Number	Publication Date	Country or Patent Office
	0 6 8 8 0 4 0	12/20/1995	EP
	1 1 4 8 5 8 1	10/24/2001	EP
	0 0 5 2 7 8 4	09/08/2000	PCT
OTHER DOCUMENTS (Including Author, Title, Date**, Relevant pages, Place of Publication***)			
EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			

FORM PTO-1449 (Modified) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		Atty Docket No.: 1313434000003	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary)		Serial No.: 10182,633	
(37 CFR 1.98(b))		Applicant(s): Puente-Balardo et al.	
		Filing Date: November 1, 2002	
		Group: Not Yet Assigned	
U.S. PATENT DOCUMENTS			
Exam. Init.	Patent Number	Issue Date	Patentee
	5 4 5 3 7 5 1	09/26/1995	Takamitsu et al.
	5 4 9 5 2 6 1	02/23/1996	Baker et al.
	5 3 3 4 8 7 7	01/09/1996	Sorbellio et al.
	6 0 9 1 3 6 5	07/18/2000	Demeryd et al.
	6 2 1 1 8 2 4	04/02/2001	Hilden et al.
	6 5 2 3 6 9 1	02/25/2003	Vanden et al.
FOREIGN PATENT OR PUBLISHED FOREIGN PATENT APPLICATION			
Exam. Init.	Document Number	Publication Date	Country or Patent Office
	0 6 8 8 0 4 0	12/20/1995	EP
	1 1 4 8 5 8 1	10/24/2001	EP
	0 0 5 2 7 8 4	09/08/2000	PCT
OTHER DOCUMENTS (Including Author, Title, Date**, Relevant pages, Place of Publication***)			
EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			

k. Then, approximately a month later, David Maiorana of Jones Day again filed these two identical IDSs respectively in the '635 Patent Application and the application leading to the '675 Patent approximately three days apart (April 19, 2004 for the '635 Patent Application on the left and April 16, 2004 for the application leading to the '675 Patent on the right):

[illegible]

1. Because of the relatedness of the claims of the application leading to the '675 Patent and the '635 Patent Application, any rejection or references applied in the application leading to the '675 Patent would have been material to all the applications of the Space Filling Miniature Patent Family.

m. The '635 Patent Application was being examined by Examiner Hoang V. Nguyen whereas the application leading to the '675 Patent was being examined by Examiner Michael C. Wimer. Examiner Nguyen also examined the applications leading to the '850 Patent and the '822 Patent.

n. Because of the relatedness of the claims of the application leading to the '675 Patent and the '635 Patent Application, Examiner Nguyen in his examination of the '635 Patent Application and the applications leading to the '850 Patent and the '822 Patent would have wanted to know of the rejections issued and/or references applied by Examiner Wimer in Examiner Wimer's examination of the application leading to the '675 Patent.

o. On October 4, 2004, in the prosecution of the application leading to the '675 Patent, Examiner Wimer of the USPTO issued an office action (addressed to Joseph Sauer of Jones Day), which was received by one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros. Examiner Wimer's rejection informed one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros that United States Patent No. 5,363,114 (the '114 Patent) disclosed both the "space-filling curve" claim feature and the "grid dimension curve" claim feature (defined in the '675 Patent specification as follows: "a curve geometry having a grid dimension that is greater than one"). Specifically, the '114 Patent was used in a 102(b) rejection of claims with the "space-filling curve" feature as follows, in part:

3. Claims 1,3,4,6 and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Shoemaker (5363114).

Regarding Claims 1,3,4,6,11-13, Shoemaker shows an antenna system integrated with a physical component of a motor vehicle comprising a radio antenna 20 having a radiating arm defining a space-filling curve "R" of right-angled bends and straight lines and having a feed point (at connector 41) and coupled to a radio, and formed on a dielectric substrate "C"; a grounding point 63 (Fig. 12), a loading point 50,58 (Fig.11), all arranged as claimed.

p. And, the '114 Patent was used in a 103(a) rejection of claims with the "grid dimension curve" feature as follows, in part:

7. Claims 9,10,18-39,43-68 and 70-74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shoemaker as applied to claims 1 above, and further in view of Thill et al. (6087990).

Regarding Claims 9,10,18-39,43-68 and 70-74, Shoemaker shows the basic antenna structure including a "grid dimension curve". No multi-band antenna arrangement is shown. Thus, Thill et al. are cited as resolving the level of

q. At the same time, on October 4, 2004, the features of the "space-filling curve" and the "box-counting dimension" being greater than one (a "grid-dimension curve," according to the '675 Patent specification) were also present in the claims of the co-pending '635 Patent Application.

r. Accordingly, the '114 Patent and the rejections based thereupon were highly material to the '635 Patent Application. Furthermore, the '114 Patent and rejections based thereupon were not cumulative to references already of record in the '635 Patent Application. At a minimum, Examiner Wimer's rejection based on the '114 Patent was not cumulative to references already of record in the '635 Patent Application. Notwithstanding this, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros withheld the '114 Patent and Examiner's Wimer's rejection from Examiner Nguyen in the prosecution of the '635 Patent Application.

s. In addition to withholding the '114 Patent and rejections based thereupon in the prosecution of the '635 Patent Application, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros additionally withheld other references cited by Examiner Wimer in rejecting claims of the application leading to the '635 Patent. In particular, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda,

Edouard Jean Louis Rozan, and Jaime Anguera Pros withheld U.S. Patent Nos. 6,011,518 (the “‘518 Patent”) and 6,087,990 (the “‘990 Patent”) — both of which were used as secondary references to the ‘114 Patent in an obviousness rejection of October 4, 2004 for claims of the application leading to the ‘675 Patent.

t. Despite previously citing the same references in both the application leading to the ‘675 Patent and the ‘635 Patent Application, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros withheld rejections and references received in the application leading to the ‘675 Patent for the prosecution of the ‘635 Patent Application.

u. One or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros recognized their duty to disclose material prior art cited in the application leading to the ‘675 Patent in other Fractus patent applications. On December 13, 2004, almost two months after receiving the rejection in the application leading to the ‘675 Patent, David Maiorana of Jones Day cited the ‘114 Patent, the ‘518 Patent, and the ‘990 Patent in U.S. Patent Application No. 10/963,080 entitled “Multilevel Antenna.” Significantly, U.S. Patent Application No. 10/963,080 entitled “Multilevel Antenna” did not include “box-counting dimension” claim features or “space-filling curve” claim features whereas the Space Filling Miniature Patent Family did include such claim features. However, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros withheld the ‘114 Patent from the prosecution of the applications for the Space Filling Miniature Patent Family.

v. On December 13, 2004, in the prosecution of the ‘635 Patent Application, Examiner Nguyen issued a First Office Action (addressed to David Maiorana of Jones Day). Examiner Nguyen did not cite the ‘114 Patent.

w. One or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros recognized the materiality of the ‘114 Patent to claims with the “space-filling curve” feature and the “box-counting dimension being greater than one” feature (a “grid-dimension curve,” according to the ‘675 Patent specification). Specifically, on January 6, 2005, in response to Examiner Wimer’s rejection in the application leading to the ‘675 Patent, Joseph Sauer of Jones Day amended the claims in attempts to distinguish them from the ‘114 Patent, specifying that the “space-filling curve” included at least “two-hundred segments.”

x. Despite the above facts, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros withheld the ‘114 Patent and the rejections based thereupon from Examiner Nguyen in the prosecution of ‘635 Patent Application.

y. In the January 6, 2005 response to Examiner Wimer’s rejection in the application leading to the ‘675 Patent, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros acknowledged the relatedness or sameness of the “box-counting dimension” and “grid-dimension” claim feature. The ‘675 Patent does not include the term “box-counting dimension.” Instead, it includes the term “grid dimension.” Additionally, Examiner Wimer never used the term “box-counting dimension” in his rejection of October 4, 2004 for the application leading to the ‘675 Patent. Notwithstanding this, in the January 6, 2005 response,

Joseph Sauer of Jones Day argued that the ‘114 Patent did not disclose the “grid dimension curve” or “box-counting dimension” claim feature, indicating the “box-counting dimension” is a “similar dimension criteria” to the “grid dimension” as follows (emphasis added):

The concept of a grid dimension curve is specifically defined in the written description as “a curve geometry having a grid dimension that is greater than one (1).” (Detailed Description, page 29, lines 8-9). A method for calculating the grid dimension of a curve geometry is set forth in the specification beginning at page 28, line 15. ***The Shoemaker reference makes no reference to the grid dimension of the antenna structure (nor does it refer to any other similar dimensional criteria, such as a box counting dimension.)***

z. Therefore, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros recognized and understood the relatedness or sameness of the “box-counting dimension” feature recited in the ‘635 Patent Application and the “grid-dimension” feature recited in the application leading to the ‘675 Patent, and yet withheld the ‘114 Patent and the rejections based thereupon from Examiner Nguyen in the prosecution of the Space Filling Miniature Patent Family.

aa. Despite the knowledge of the ‘114 Patent and the knowledge of the rejections based thereupon, and the knowledge that similar claims had to be amended to attempt to overcome the ‘114 Patent, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros did not inform Examiner Nguyen of the ‘114 Patent or the rejections based thereupon. Particularly, on March 17, 2005, approximately two months after making an amendment to overcome the ‘114 Patent in a response for the prosecution of the ‘635 Patent Application of the Space Filling Miniature Patent Family, instead of apprising Examiner Nguyen and the USPTO of the ‘114 Patent or the rejections recently received in the application leading to the ‘675 Patent,

one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros remained silent.

bb. Moreover, in its March 17, 2005 response in the prosecution of the ‘635 Patent Application, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros decided to take claims that Examiner Nguyen identified as being allowable in a December 13, 2004 rejection (e.g., Dependent Claim 2). Of the claims identified as being allowable, Examiner Nguyen indicated that the cited references (which did not include the ‘114 Patent or the rejections based thereupon withheld from Examiner Nguyen) did not include the claim feature of a “box-counting dimension” being greater than one (e.g., as contained in Dependent Claim 2) — the same claim feature that one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros knew the USPTO found was disclosed by the ‘114 Patent (specifically Examiner Wimer in the application leading to the ‘675 Patent).

cc. In this March 17, 2005 response, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros took the claims (e.g., Dependent Claim 2) allowed by Examiner Nguyen knowing that Examiner Wimer believed that another reference, the ‘114 Patent, disclosed such claim features, and knowing that Examiner Nguyen did not know of the ‘114 Patent or Examiner Wimer’s rejection based thereupon.

dd. The pattern of withholding information from the USPTO in the prosecution of the Space Filling Miniature Patent Family continued. On April 7, 2005, in the prosecution of the application leading to the ‘675 Patent, one or more of Joseph Sauer of Jones

Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros was reminded, again, of the highly material nature of the ‘114 Patent. Specifically, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros received another rejection (addressed to Joseph Sauer of Jones Day) from Examiner Wimer at the USPTO. Examiner Wimer’s rejection indicated that the ‘114 Patent disclosed the “space-filling curve” claim feature and the “box-counting dimension being greater than one” claim feature (the so-called “grid dimension curve”) — even after the claims were further amended to require that the “space-filling curve” included at least “two-hundred segments.”

ee. At this time, the ‘625 Patent Application had not yet issued as a patent. However, despite the rejection of April 7, 2005 described in the preceding subparagraph, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros withheld the ‘114 Patent and Examiner’s Wimer’s rejection from Examiner Nguyen in the prosecution of the ‘635 Patent Application.

ff. As identified in the preceding subparagraphs, during the six month time period between October 4, 2004 and April 7, 2005, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros had numerous opportunities that served as prompting reminders to disclose the ‘114 Patent, and the rejections based thereupon to Examiner Nguyen in the examination of the ‘635 Patent Application. Despite at least five opportunities to disclose the ‘114 Patent and Examiner’s Wimer’s rejections based thereupon, one or more of Joseph Sauer of

Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros chose to withhold them.

gg. In the prosecution of the application leading to the '675 Patent, to ultimately overcome the highly material '114 Patent, at least two requests for continued examinations (RCEs) were filed and further amendments were made specifying that the size of the segments in the "space-filling curve" were less than "34 mm" and that the antenna operated in FM bands.

hh. Despite these amendments made to overcome the '114 Patent in the prosecution of the application leading to the '675 Patent, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros withheld the '114 Patent and the multiple rejections based thereupon from Examiner Nguyen.

ii. U.S. Patent Application No. 12/347,462 (the '462 Patent Application) is a member of the Space Filling Miniature Patent Family, purportedly claiming priority to the '635 Patent Application.

jj. Brian Walker of Howison & Arnott, LLP has been involved in the prosecution of the '462 Patent Application. Accordingly, Mr. Walker has a duty of candor and good faith in dealing with the USPTO, which includes a duty to disclose material information to the USPTO for the '462 Patent Application.

kk. Each of Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros are listed as inventors on the '462 Patent Application. Upon information and belief, one or more of them were substantively involved in the prosecution of the '462 Patent Application. Each of them had a duty of candor and good faith in dealing with the USPTO,

which includes a duty to disclose material information to the USPTO for the ‘462 Patent Application.

ll. On April 21, 2009, a preliminary amendment was filed in the ‘462 Application to replace Claims 1-17 with new Claims 18-145, at least some of which are directed towards a “multi-segment curve” and “box-counting dimension.” The following are non-limiting examples:

‘462 Patent Application: At least claims 42-44, 50, 74-76, 106-108, and 138-140 include a “box-counting dimension” feature whereas at least claims 50-81 include a “multi-segment curve” feature. Thus, these claims recite the same or similar concepts as the claims of the ‘635 Patent Application and the applications leading to the ‘850 Patent and the ‘822 Patent.

mm. Upon information and belief, Fractus treated the “multi-segment curve” claim feature as a similar feature to the “space-filling curve” claim feature.

nn. The ‘462 Patent Application is being examined by Examiner Hoang V. Nguyen. Examiner Nguyen also examined the ‘635 Patent Application and the applications leading to the ‘850 Patent and the ‘822 Patent.

oo. On May 18, 2009, a Notice of Allowance was mailed allowing claims 18-145 of the preliminary amendment dated April 21, 2009.

pp. On or around September 21, 2009, Fractus was provided a draft of the information in the preceding sub-paragraphs discussing the withholding of the ‘114 Patent from Examiner Nguyen in the prosecution of the applications in the Space Filling Miniature Patent Family.

qq. On September 23, 2009, Mr. Walker filed a Petition for Withdrawal from Issue under 37 C.F.R. 1.313(c)(2), indicating that withdrawal was necessary so that a Request for Continued Examination and an Information Disclosure Statement could be filed under 37 C.F.R. 1.97. The Information Disclosure Statement filed with the Petition for

Withdrawal cited the ‘114 Patent (Shoemaker reference) and the Office Action dated October 4, 2004 issued by Examiner Wimer of the USPTO in the prosecution of the application leading to the ‘675 Patent, as described in detail above.

rr. On September 30, 2009, the USPTO Office of Petitions granted the Petition for Withdrawal dated September 23, 2009.

ss. On October 28, 2009, Examiner Nguyen mailed an office action in the prosecution of the ‘462 Patent Application. This office action rejected many claims under 35 U.S.C. 102(b) as being anticipated by the ‘114 Patent as follows, in part (highlighting added):

Regarding claim 50, Shoemaker (Figures 2, 8, 9) discloses an antenna comprising a radiating element 20 at least a portion of which is defined by a multi-segment curve, each of said segments being spatially arranged such that no two adjacent and connected segments form another longer straight segment and none of said segments intersects with another segment other than at the beginning and at the end of said multi-segment, irregular curve to form a closed loop; wherein the multi-segment curve has a box counting dimension larger than one; wherein the antenna radiates at multiple different operating wavelengths; wherein at least one of the operating wavelengths corresponds to an operating wavelength of a cellular telephone system (col 6, lines 47-53); and wherein said multi-segment curve is shaped so that the arrangement of a portion of said multi-segment curve including bends is not self-similar with respect to the entire multi-segment curve.

tt. Examiner Nguyen thereby recognized the materiality of the ‘114 Patent (Shoemaker reference) to the claims with the “multi-segment curve” and the “box counting dimension.”

uu. The October 28, 2009 Office Action also rejected other claims under 35 U.S.C. 103(a) as being unpatentable over the ‘114 Patent (Shoemaker reference) as follows, in part:

Regarding claims 19, 20, 24, 25, 27, 28, 40, 41, 51, 52, 56, 57, 59, 60, 72, 73, 83, 84, 88, 89, 91, 92, 104, 105, 115, 116, 120, 121, 123, 124, 136 and 137, Shoemaker discloses the

vv. Because of the relatedness of the claims of the applications of the Space Filling Miniature Patent Family and the '462 Patent Application, and because Examiner Nguyen used the '114 Patent to reject claims of the '462 Patent Application, Examiner Nguyen would have wanted to know of the '114 Patent and the Office Action dated October 4, 2004 during his examination of the '635 Patent Application and the applications leading to the '850 Patent and the '822 Patent.

ww. As identified in the above subparagraphs, the '114 Patent and the rejections based thereupon (received in the prosecution of the application leading to the '675 Patent) were highly material to claims of the '635 Patent Application, the '850 Patent, and the '822 Patent, for at least the following reasons:

- There were common claim features in each of the patent applications: Each of the '675 Patent, the '635 Patent Application, the '850 Patent, and the '822 Patent include or included common claim features of the "space-filling curve" and the "box-counting dimension" (which applicants sometimes referred to as a "grid-dimension" or a "grid dimension curve" – where the "grid-dimension" is greater than one).
- Two different examiners examined the patent applications: Examiner Wimer examined the application leading to the '675 Patent whereas Examiner Nguyen examined the '635 Patent Application and the applications leading to the '850 Patent and the '822 Patent.
- The First Examiner found that the '114 Patent disclosed the common claim features: On October 4, 2004, in the application leading to the '675 Patent, Examiner Wimer indicated that both of the above-identified common claim features (the "space-filling curve" claim feature and the "box-counting dimension" claim feature) are disclosed by a single reference, the '114 Patent. At that time, the common claim features (the "space-filling curve" claim feature and the "box-counting dimension" claim feature) were present in the co-pending '635 Patent Application.
- The Second Examiner, unaware of the '114 Patent or the First Examiner's rejections, found that the cited art did not disclose the common claim features: On December 13, 2004, in the '635 Patent Application, Examiner Nguyen, unaware of the '114 Patent or Examiner Wimer's rejection based thereupon, identified claims with a "box-counting

dimension greater than one” as allowable – a finding specifically contrary to Examiner Wimer’s finding for the exact same claim feature on October 4, 2004.

- Applicants presented an amendment to the common claim features to the First Examiner in attempts to overcome the ‘114 Patent: On January 6, 2005, in the application leading to the ‘675 Patent, Joseph Sauer of Jones Day amended the “space-filling” curve claims in an attempt to distinguish them from the ‘114 Patent. Specifically, Joseph Sauer amended them to require the “space-filling curve” to include at least “two-hundred segments.” At that time, the common claim features (the “space-filling curve” claim feature and the “box-counting dimension” claim feature) were still present in the co-pending ‘635 Patent Application.
- Applicants took claims with the common claim features from the Second Examiner: On March 17, 2005, in the ‘635 Patent Application, Joseph Sauer of Jones Day took claims that Examiner Nguyen identified as allowable, namely those with a “box-counting dimension greater than one” – the same claim feature that Examiner Wimer found was disclosed by the ‘114 Patent on October 4, 2004.
- The First Examiner found that the ‘114 Patent disclosed the common claim features – even as further amended: On April 7, 2005, in the application leading to the ‘675 Patent, Examiner Wimer again indicated that both of the above-identified common claim features (the “space-filling curve” feature and “box-counting dimension” feature) are disclosed by a single reference, the ‘114 Patent. At that time, the common claim features (the “space-filling curve” claim feature and the “box-counting dimension” claim feature) were still present in the co-pending ‘635 Patent Application.
- Applicants presented further amendments to the common claim features to the First Examiner in attempts to overcome the ‘114 Patent: In the prosecution of the application leading to the ‘675 Patent, to ultimately overcome the highly material ‘114 Patent, at least two requests for continued examinations (RCEs) were filed and further amendments were made specifying that the size of the segments in the “space-filling curve” were less than “34 mm” and that the antenna operated in FM bands.
- When the Second Examiner is finally notified of the ‘114 Patent in a continuation application, the Second Examiner rejects claims with the common claim features as being anticipated by the ‘114 Patent: On September 23, 2009, Examiner Nguyen is finally informed of the ‘114 Patent in a continuation application of the Space Filling Miniature Patent Family. On October 28, 2009, Examiner Nguyen rejects multiple claims with the common claim features (including the “box-counting dimension [being] larger than one” feature) as being anticipated by the ‘114 Patent.

xx. As identified in the above subparagraphs, the intent to deceive

Examiner Nguyen and the USPTO by one or more of Joseph Sauer of Jones Day, David

Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaume

Anguera Pros (the “Group Having a Duty of Candor”) is also apparent based on the following pattern of conduct:

- There were common claim features in each of the patent applications: Each of the ‘675 Patent, the ‘635 Patent Application, the ‘850 Patent, and the ‘822 Patent include or included common claim features of the “space-filling curve” and the “box-counting dimension” (which applicants sometimes referred to as a “grid-dimension” or a “grid dimension curve” – where the “grid-dimension” is greater than one).
- Two different examiners examined the patent applications: Examiner Wimer examined the application leading to the ‘675 Patent whereas Examiner Nguyen examined the ‘635 Patent Application and the applications leading to the ‘850 Patent and the ‘822 Patent.
- One or more of the Group Having a Duty of Candor established a practice of cross-citing references in the patent applications and then intentionally stopped: One or more of the Group Having a Duty of Candor recognized that the application leading to the ‘675 Patent and the ‘635 Patent Application are related by citing the same references in both applications. This established and repeated practice of citing the same references in both cases ceased after the ‘114 Patent and other prior art references were used to reject claims in the application leading to the ‘675 Patent.
- One or more of the Group Having a Duty of Candor was put on specific notice of the materiality of the ‘114 Patent when the First Examiner found that the ‘114 Patent disclosed the common claim features: On October 4, 2004, in the application leading to ‘675 Patent, Examiner Wimer’s rejection indicated that both of the above-identified common claim features (“space-filling curve” feature and “box-counting dimension” feature) are disclosed by a single reference, the ‘114 Patent.
- One or more of the Group Having a Duty of Candor recognized their duty of disclosure by citing the ‘114 Patent in a less relevant application; however, they did not cite the ‘114 Patent to the Second Examiner in an application in which it was highly relevant: On December 13, 2004, one or more of the Group Having a Duty of Candor cited the ‘114 Patent, the ‘518 Patent, and the ‘990 Patent in U.S. Patent Application No. 10/963,080 entitled “Multilevel Antenna,” which did not include the common claim features. However, they did not cite the ‘114 Patent, the ‘518 Patent, and the ‘990 Patent in the ‘635 Patent Application, which did include the common claim features.
- One or more of the Group Having a Duty of Candor was presented with at least five distinct opportunities to disclose the ‘114 Patent to the Second Examiner, but intentionally chose not to act on each of these opportunities: At least five distinct opportunities served as prompting reminders to disclose the ‘114 Patent and the rejections based thereupon to Examiner Nguyen in the examination of the ‘635 Patent Application, including: (1) an October 4, 2004 rejection by Examiner Wimer in the application leading to the ‘675 Patent, indicating that the ‘114 Patent disclosed the common claim features, (2) a December 13, 2004 Office Communication by Examiner Nguyen in the ‘635 Patent Application, indicating he was unaware of the ‘114 Patent, (3) a January 6, 2005

amendment to the common claim features presented to Examiner Wimer in the application leading to the '675 Patent in attempts to overcome the '114 Patent, (4) a March 17, 2005 taking of claims with the common claim feature from Examiner Nguyen in the '635 Patent Application, and (5) an April 7, 2005 rejection by Examiner Wimer in the application leading to the '675 Patent, indicating that the amendment to the common claim features still did not overcome the '114 Patent.

- Despite the knowledge of the '114 Patent, the knowledge of the rejections based thereupon, and the knowledge that the common claim features had to be amended to overcome the '114 Patent, one or more of the Group Having a Duty of Candor did not inform the Second Examiner of the '114 Patent or the rejections based thereupon; rather they took claims with the common claim features from the Second Examiner: On March 17, 2005, in the '635 Patent Application, Joseph Sauer of Jones Day took claims that Examiner Nguyen identified as allowable, namely those with a "box-counting dimension greater than one" – the same claim feature Examiner Wimer found was disclosed by the '114 Patent. One or more of the Group Having a Duty of Candor took these claims knowing that Examiner Wimer believed that another reference, the '114 Patent, disclosed such claim features, and knowing that Examiner Nguyen did not know of the '114 Patent or Examiner Wimer's rejection based thereupon.
- One or more of the Group Having a Duty of Candor never disclosed the '114 Patent to the Second Examiner despite continued difficulties with the '114 Patent in the application with the First Examiner: Ultimately, the Group Having a Duty of Candor never disclosed the '114 Patent or Examiner Wimer's rejections based thereupon to Examiner Nguyen in either the '635 Patent Application or the applications leading to the '850 Patent and the '822 Patent. This is despite the fact that claims in the application leading to the '675 Patent had to be even further amended.

yy. Because the highly material '114 Patent and Examiner Wimer's rejections based thereupon were intentionally withheld from the prosecution of the Space Filling Miniature Patent Family (namely, Examiner Nguyen), one or more of, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros deceived Examiner Nguyen and the USPTO. As a result, all of the patents in the Space Filling Miniature Patent Family are unenforceable due to inequitable conduct.

zz. Any inequitable conduct that occurred in the '635 Patent Application would spread to children that claimed priority to such an application. Because the same claim features (e.g., the "space-filling curve" claim feature and the "box-counting

dimension greater than one” claim feature) included in the ‘635 Patent Application were also included in the ‘850 Patent and the ‘822 Patent, the inequitable conduct with respect to such claim features in the ‘635 Patent Application infected the ‘850 Patent and the ‘822 Patent. Additionally, the failure to cite the ‘114 Patent and rejections based thereupon in the prosecution of the applications leading to the ‘850 Patent and the ‘822 Patents separately constitutes a basis of inequitable conduct with respect to the ‘850 Patent and the ‘822 Patent.

Those Having a Duty of Candor and Good Faith in Dealing with the USPTO Withheld European Prosecution Communications for EP Application No. 00909089.5 in the Prosecution of the ‘850 Patent, the ‘822 Patent, and the Parent Application of the ‘850 Patent and the ‘822 Patent.

164. The ‘850 Patent and the ‘822 Patent are additionally unenforceable because Applicants and/or their patent attorneys and/or others substantively involved in prosecution before the USPTO knowingly withheld with an intent to deceive highly material information received in a related foreign Fractus application as follows:

a. The ‘635 Patent Application (of the Space Filling Miniature Patent Family) purportedly claims priority to Patent Cooperation Treaty (“PCT”) Application No. EP00/00411. European Patent (“EP”) Application No. 00909089.5 also purportedly claims priority to PCT Application No. EP00/00411. Accordingly, EP Application No. 00909089.5 was a foreign counterpart to the ‘635 Patent Application of the Space Filling Miniature Family.

b. In EP Application No. 00909089.5, multiple communications were received from and sent to the European Patent Office (“EPO”) by individuals from the Spanish law firm of Herrero & Asociados. Among other things, the EPO issued multiple rejections for then-pending “space-filling curve” and “box-counting dimension” claims, pointing to a “Lack of Clarity,” a “Lack of Disclosure,” and a lack of “Novelty and Inventive Step.” However, as discussed more fully below, those owing a duty of candor and good faith to the USPTO withheld these communications with the EPO from the USPTO.

c. Jones Day attorney Roland Brachmann represented Fractus in EP Application No. 00909089.5. Furthermore, upon information and belief, there were communications between one or more of Joseph Sauer of Jones Day and/or David Maiorana of Jones Day, who were involved in the prosecution of the '635 Patent Application for Fractus in the United States, and those individuals (including individuals from the Spanish law firm of Herrero & Asociados and Roland Brachman) involved with the prosecution of EP Application No. 00909089.5.

d. As examples of the communications in the preceding subparagraph, on November 15, 2004 (file stamped date by the USPTO) in the prosecution of the '635 Patent Application, prior to a First Office Action, Joseph Sauer of Jones Day had the feature of "adjacent segments can be optionally rounded or smoothed" deleted from the claims. This exact same feature was removed from the claims in the EP Application No. 00909089.5 on December 16, 2004 (approximately one month later), shortly before EP Application No. 00909089.5 was scheduled for an oral proceeding. Upon information and belief, such an identical amendment to the claims could not have occurred absent communications between one or more of Joseph Sauer of Jones Day and/or David Maiorana of Jones Day and those individuals involved with the prosecution of EP Application No. 00909089.5.

e. Additionally, as described more fully in the subparagraphs below, one or more of Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros, Roland Brachmann of Jones Day, Joseph Sauer of Jones Day and/or David Maiorana of Jones Day decided to submit at least one of the EPO communications from the prosecution of EP Application No. 00909089.5 to the USPTO. Upon information and belief, such a submission could not have been made absent communications between one or more of Joseph Sauer of Jones

Day and/or David Maiorana of Jones Day and those individuals involved with the prosecution of EP Application No. 00909089.5.

f. Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, and David Maiorana of Jones Day, had a duty of candor and good faith in dealing with the USPTO, which included a duty of disclosure of material information to the USPTO. Additionally, Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros had a duty of candor and good faith in dealing with the USPTO, which included a duty of disclosure of material information to the USPTO.

g. At a minimum, the duties described in the preceding subparagraph required disclosure of material information in the '635 Patent Application as well as in the applications leading to the '850 Patent and the '822 Patent.

h. On February 7, 2003, the EPO issued an examination report in EP Application No. 00909089.5, rejecting then-pending "box-counting dimension" and "space-filling curve" claims. Amongst the rejections in the EPO examination report was an Article 84 "Lack of Clarity" rejection as follows (emphasis in original):

The definition of the so called **box-counting dimension** is neither clearly defined in Claim 2 nor in the description (see page 3, lines 19-25). Therefore no examination can be performed.

i. Upon information and belief, a rejection under Article 84 at the EPO is analogous to a rejection for indefiniteness under 35 U.S.C. §112 at the USPTO.

j. In this February 7, 2003 examination report for EP Application No. 00909089.5, the EPO additionally indicated that there was a "Lack of Novelty" and "Lack of Inventive Step" in the claims, relying on Publication WO 9706578 (listing Cohen as inventor) as a key reference in both the "Lack of Novelty" and "Lack of Inventive Step" rejections.

k. Upon information and belief, a rejection for “Lack of Novelty” at the EPO is analogous to a rejection under 35 U.S.C. §102 at the USPTO, and a rejection for “Lack of Inventive Step” at the EPO is analogous to a rejection under 35 U.S.C. §103(a) at the USPTO.

l. On August 14, 2003, in a “Reply to Examination Report” for EP Application No. 00909089.5, Fractus’ foreign patent attorneys from Herrero & Asociados made arguments responsive to the Lack of Clarity and the Lack of Novelty and Inventive Step rejections. Specifically, in response to the Lack of Clarity rejections, Fractus’ foreign patent attorneys from Herrero & Asociados made at least the following arguments concerning the “box-counting dimension” claim feature:

The Examiner should bear in mind that the box-counting-dimension has been described in many technical publication and textbooks well before the priority date, which demonstrates that said concept is very well known to those skilled in the art. As an example of discussion upon box-counting dimension, reference could be made to the publication “D.A.Russell, J.D.Hanson, E.Ott, *Dimension and Strange Attractors*, *Phys.Rev. Lett.* 45 (1980) 1175-1178”.

Further information about the box-counting-dimension can be found in the following internet links:

<http://www.redbrick.dcu.ie/~bolsh/thesis/node16.html>

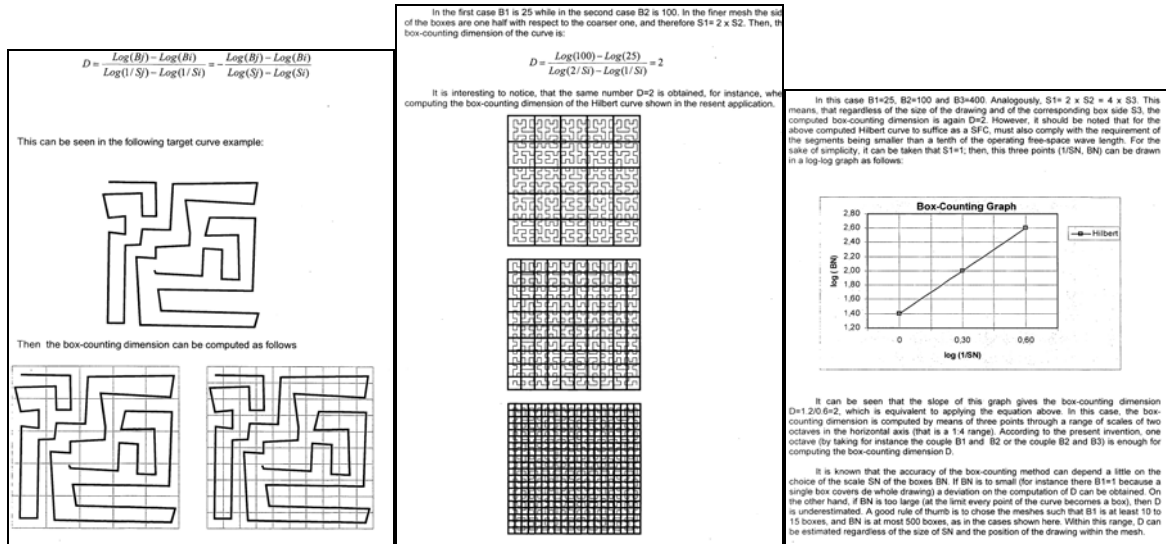
<http://www.redbrick.dcu.ie/~bolsh/thesis/node22.html>

Some references that discuss this box-counting method are: D.A.Russell, J.D.Hanson, E.Ott, “Dimension and Strange Attractors”, *Phys.Rev. Lett.* 45 (1980) 1175-1178 ; Paul So, Ernest Barreto, and Brian R. Hunt, “Box-counting dimension without boxes: Computing D0 from average expansion rates”, *Physical Review E (Statistical Physics, Plasmas, Fluids, and Related Interdisciplinary Topics)* – July 1999 -- Volume 60, Issue 1, pp. 378-385 (See Attachment I). A software code to compute the box-counting dimension from a graph can be found in:

<http://www.sewanee.edu/physics/PHYSICS123/BOX%20COUNTING%20DIMENSION.html>

m. Upon information and belief, with the above arguments, Fractus’ foreign patent attorneys from Herrero & Asociados were attempting to convince the EPO that a

box-counting dimension feature was “very well known.” After providing the above argument, the following excerpted tutorial was provided to the EPO as demonstrating “one way of computing the box-counting dimension”:



n. Upon information and belief, among other things, this tutorial explained how Fractus believed a box-counting dimension could be calculated. In the excerpt farthest to the left, the tutorial explained how a box-counting dimension was calculated for a “target curve.” In the excerpt in the middle, the tutorial explained the box-counting dimension of the “Hilbert curve shown in the [p]resent application.” In the excerpt on the right, the tutorial explained a log-log “box-counting graph.”

o. In the August 14, 2003 Reply to Examination Report for EP Application No. 00909089.5, Fractus’ foreign patent attorneys from Herrero & Asociados additionally attempted to distinguish the “box-counting dimension” feature of the claims from Publication WO 9706578’s calculation of a “fractal dimension,” arguing (Emphasis in original, the D1 reference being Publication WO 9706578, listing Cohen as inventor):

In the present application, the so called box-counting dimension is used to characterized the space-filling curves. As it is clearly understood for those skilled in the art, the above definition of 'fractal' dimension of D1 is not the same definition of the box-counting dimension used in the present application (see D.A.Russell, J.D.Hanson, E.Ott, *Dimension and Strange Attractors*, *Phys.Rev. Lett.* 45 (1980) 1175-1178 for a discussion upon box-counting dimension).

Furthermore, in claim 1 of the present application the space-filling curves are characterised in that "said SFC features a box-counting dimension larger than one...", that is, the box-counting dimension is used to specifically identify a particular set of SFC curves. Such a feature of a box-counting dimension is therefore claimed to play a key role in the miniaturization features of said particular set of SFC antennas when said dimension is larger than one.

p. When Fractus' foreign patent attorneys from Herrero & Asociados were making arguments, providing references, and providing the tutorial in the August 14, 2003 Reply to Examination Report, the exact same "box-counting dimension" and "space-filling curve" claim features were present in both the '635 Patent Application and EP Application No. 00909089.5. In particular, on August 14, 2003, for EP Application No. 00909089.5 the "space-filling curve" and the "box-counting dimension larger than one" claim features were present in at least independent Claim 1 (with the claim features from Claim 2 being incorporated into Claim 1). Additionally, on August 14, 2003 in the '635 Patent Application, the "space-filling curve" feature was present in Claim 1, and the "box-counting dimension larger than one" feature was present in dependent Claim 2 — both Claims 1 and 2 being the originally filed claims.

q. Because the same "space-filling curve" and "box-counting dimension" claim features were contained in EP Application No. 00909089.5 and U.S. applications for the Space Filling Miniature Patent Family, a U.S. patent examiner would have wanted to review and consider the references cited by Fractus' foreign patent attorneys from Herrero & Asociados to the EPO on August 14, 2003. Further, a U.S. patent examiner would have wanted to review and consider a copy of the tutorial provided by Fractus' foreign patent attorneys from Herrero & Asociados to the EPO on August 14, 2003. Moreover, a U.S. patent examiner would have wanted to review and consider a copy of the arguments from Fractus' foreign patent attorney from Herrero & Asociados to the EPO concerning how Publication WO

9706578's "fractal dimension" was purportedly different than a "box-counting dimension." Particularly, a U.S. patent examiner would use the information in the preceding sentences of this subparagraph to establish unpatentability of claims in the applications of the Space Filling Miniature Patent Family (namely, the "space-filling curve" claims and "box-counting dimension" claims). Therefore, the information provided to the EPO in the August 14, 2003 "Reply to Examination Report" was material to the "space-filling curve" claim features and "box-counting dimension" claim features in the Space Filling Miniature Patent Family.

r. Upon information and belief, Carles Puente Baliarda, Edouard Jean Louis Rozan, and/or Jaime Anguera Pros were involved with this August 14, 2003 "Reply to Examination Report." Specifically, the technical nature of these arguments and "box-counting dimension" tutorial suggest that more than just Fractus' foreign patent attorneys from Herrero & Asociados developed the arguments. Moreover, upon information and belief, one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros received copies of the August 14, 2003 "Reply to Examination Report." However, as discussed in more detail below, one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros withheld the August 14, 2003 Reply to Examination Report from Examiner Nguyen in his examination of the application of the Space Filling Miniature Patent Family.

s. The materiality of the August 14, 2003 Reply to Examination Report in EP Application No. 00909089.5 and knowledge of such materiality by one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros is apparent.

Upon information and belief, recognizing the “Lack of Clarity” problems with the “box-counting dimension” feature of the claims in EP Application No. 00909089.5, one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros made a decision to embed the “box-counting dimension” tutorial of August 14, 2003 in new Fractus patent applications with claims directed to the “space-filling curve” feature.

t. A specific example of a new application referenced in the preceding subparagraph is the application leading to the ‘675 Patent (discussed in paragraph 183). Joseph Sauer of Jones Day filed the application leading to the ‘675 Patent on April 24, 2003, shortly after the tutorial was provided to the EPO on August 14, 2003. The ‘675 Patent included the August 14, 2003 tutorial embedded directly in the specification. However, upon information and belief, knowing that the term “box-counting dimension” was unclear and knowing that claims with the “box-counting dimension” feature received multiple “Lack of Clarity” rejections in the EPO, one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros chose to use a new word to describe the “box-counting dimension” concept — “grid dimension.” Furthermore, to describe the concept of a “box-counting dimension being greater than one,” one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros chose to use a new term — “grid-dimension curve.”

u. Although the application leading to the ‘675 Patent never used the term “box-counting” dimension, one or more of Roland Brachmann of Jones Day, Joseph Sauer

of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros knew that the “box-counting dimension” and the new “grid dimension” were the same thing. As described above, in a January 6, 2005 response for the application leading to the ‘675 Patent, Joseph Sauer of Jones Day argued that a particular reference, the ‘114 Patent, did not disclose the “grid dimension curve” or “box-counting dimension” claim feature, indicating the “box-counting dimension” is a “similar dimension criteria” to the “grid dimension” as follows (emphasis added):

The concept of a grid dimension curve is specifically defined in the written description as “a curve geometry having a grid dimension that is greater than one (1).” (Detailed Description, page 29, lines 8-9). A method for calculating the grid dimension of a curve geometry is set forth in the specification beginning at page 28, line 15. ***The Shoemaker reference makes no reference to the grid dimension of the antenna structure (nor does it refer to any other similar dimensional criteria, such as a box counting dimension.)***

v. Therefore, by supplying the August 14, 2003 tutorial in a new application, one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros specifically recognized the importance of providing a U.S. patent examiner this tutorial in order to understand the “box-counting dimension” claim feature.

w. The materiality of this August 14, 2003 tutorial became further apparent. As indicated above with reference to the ‘675 Patent, when the August 14, 2003 tutorial was included in a specification, the USPTO (particularly Examiner Wimer) found that art (e.g., the ‘114 Patent), included the so-called “box-counting dimension greater than one” or “grid-dimension curve” claim feature.

x. Subsequent to the August 24, 2003 filing of the application leading to the ‘675 Patent, on December 8, 2003, in the prosecution of ‘635 Patent Application in the U.S. (of the Space Filling Miniature Patent Family), one or more of Roland Brachmann of Jones Day,

Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros decided to submit certain information to the USPTO concerning the prosecution of EP Application No. 00909089.5.

y. More particularly, having received a copy of the February 7, 2003 Examination Report and a copy of the August 14, 2003 Reply to Examination Report (which included the tutorial), one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros decided to selectively submit only the February 7, 2003 Examination Report and not the August 14, 2003 Reply to Examination Report (the latter of which included the tutorial) and not the references cited in the August 14, 2003 Reply to Examination Report.

z. Specifically, on December 8, 2003, in the prosecution of the '635 Patent Application, David Maiorana of Jones Day provided an IDS, which lists "European Patent Office Communication from the corresponding European patent application dated February 7, 2003 (10 pgs.)," which purportedly contains the February 7, 2003 Examination Report.

aa. One or one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros decided not to provide the August 14, 2003 Reply to Examination Report (which included the tutorial) to the USPTO despite:

- a decision by one or more of the same group of people that the tutorial provided in the August 14, 2003 Reply to Examination Report needed to be included in new Fractus applications (in particular, the application leading to the '675 Patent) with "space-filling curve" features in order to explain to an examiner how the claim feature of "the box-counting dimension greater one" or so-called "grid dimension curve" was allegedly different than the prior art;
- a decision by one or more of the same group of people that the tutorial provided in the August 14, 2003 Reply to Examination Report needed to be supplied to the EPO in attempts to explain that one of ordinary skill in the art purportedly could understand the

“box-counting dimension greater than one” claim feature and to argue that this claim feature was purportedly novel; and

- the U.S. Patent Office recommending that applicants “carefully examine . . . [t]he closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.” 37 C.F.R. §1.56(a)(2).

bb. On October 28, 2004, in EP Application No. 00909089.5, the EPO issued a Summons to Attend Oral Proceedings (“Summons”). An annex to the Summons articulated the EPO’s rejections, including why it believed there was a “Lack of Clarity,” a “Lack of Disclosure,” and lack of “Novelty and Inventive Step” concerning the “space-filling curve” and “box-counting dimension” claim features. In the “Lack of Clarity” rejections, the EPO indicated the following (emphasis in original):

5.2 Feature (f) of Claim 1 by defining a **box-counting dimension larger than one** is still not clear.

Applicants have argued in their letter of 14.8.2003 (pages 2-3) the three documents D7-D9 would give the **box-counting dimension larger than one**. However the Examining Division cannot find in documents D7 and D8 such a clear definition whereas the content of later published document D9 cannot be taken into account because it does not form prior art in the meaning of Article 54 (2) EPC.

It is noted that the formulation of feature (f) of present Claim 1 could be found only in originally filed Claim 2 with the additional definition “a box-counting dimension larger than one, being said box-counting dimension computed **as usual** ...” which words “as usual” were suppressed in the present formulation of feature (f). However these words could only give the impression that this definition was uniquely defined which is known to the person skilled in the art. However there is no further explanation in the originally filed description, moreover no document is cited for it therein.

cc. Thus, the EPO was explaining that the “box-counting dimension larger than one” claim feature was “still not clear.” In particular, the EPO noted that references cited by Fractus’ foreign patent attorneys from Herrero & Asociados did not provide a “clear definition” of this claim feature.

dd. In the October 28, 2004 Summons, the EPO additionally provided a new “Lack of Disclosure” rejection, indicating the following (emphasis in original):

6. **Lack of disclosure (Article 83 EPC)**

- 6.1 According to paragraph 5.2 above feature (f) of Claim 1 is not clear and the applicants have argued that box-counting dimension is a well-known mathematical descriptor (see their letter of 14.8.2003, page 2, third last paragraph), but have yet not proved on the basis of prior art documents that feature (f) was known to the skilled person at the filing date of the application.
- 6.2 Moreover, the applicants have argued in their letter of 14.8.2003, page 11, second paragraph, that in document D1 there are several definitions of fractal dimensions which are not consistent and coherent among them. This shows that there are many different definitions possible for space-filling curves and, respectively, for fractal curves. Therefore, it is totally unclear what the person skilled in the art should understand when reading feature (f) of Claim 1 where a **box-counting dimension larger than one** is defined, **being said box-counting dimension computed as the slope of the straight portion of a log-log graph, wherein such a straight portion is substantially defined as a straight segment over at least an octave of scales on the horizontal axes of the log-log graph.**
- 6.3 It is concluded by the Examining Division that the claimed invention is not disclosed sufficiently clear and complete, thus the person skilled in the art could not carry out the claimed invention on the filing date of the present application (Article 83 EPC).

ee. Thus, in addition to the Lack of Clarity rejection, the EPO was supplying a Lack of Disclosure (Article 83) rejection, indicating that “the person skilled in the art could not carry out the claimed invention” with this “box-counting dimension” claim feature.

ff. Upon information and belief, a rejection under Article 83 at the EPO is analogous to an enablement rejection under 35 U.S.C. §112 at the USPTO.

gg. Furthermore, in its October 28, 2004 Summons, the EPO maintained its “Lack of Novelty and Inventive Step” rejections based on Publication WO 9706578 (listing Cohen as inventor). For example, the EPO noted the following (the D1 reference being Publication WO 9706578, listing Cohen as inventor):

It was already noted above that in document D1 the special term "fractal antennas" is used, however, the antennas as shown in the figures, e.g. Figs. 5B, 7C1, 7C2, 8B and 8C show a similar construction as the space-filling antennas shown in the figures of the present application (e.g. Figs. 3-7), therefore, the opinion of the Examining Division is maintained that the "fractal antennas" represent the same kind of mathematical curves which are only defined in the present application in a different way as "space-filling curves".

hh. Because the same “space-filling curve” features and “box-counting dimension” features were contained in EP Application No. 00909089.5 and U.S. applications for the Space Filling Miniature Patent Family, a U.S. patent examiner would have wanted to review and consider a copy of the rejections provided by the EPO in the October 28, 2004 Summons. In particular, a U.S. Patent Examiner would have wanted to see the new “Lack of Disclosure” rejection. Furthermore, a U.S. Patent Examiner would have wanted to see how the EPO was continuing to maintain its rejections — even after submission of references and arguments by Fractus’ foreign patent attorneys from Herrero & Asociados. Particularly, a U.S. patent examiner would use the information in the preceding sentences of this subparagraph to establish unpatentability of claims in the applications of the Space Filling Miniature Patent Family (namely, the “space-filling curve” claims and “box-counting dimension” claims). Therefore, the information in the preceding subparagraphs concerning the October 28, 2004 Summons was material to the “space-filling curve” claim features and the “box-counting dimension” claim features in the Space Filling Miniature Patent Family in the United States.

ii. Upon information and belief, one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros received a copy of the October 28, 2004 Summons. However, one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros withheld the information in the October 28, 2004 Summons from the USPTO.

jj. On December 15, 2004, in EP Application No. 00909089.5, Fractus’ foreign patent attorneys from Herrero & Asociados provided a “Letter Dealing with

Oral Proceedings,” making further arguments responsive to the EPO’s “Lack of Clarity” and “Lack of Novelty and Inventive Step” rejections. In the arguments responsive to the EPO’s “Lack of Clarity” rejections, Fractus’ foreign patent attorneys from Herrero & Asociados made further arguments and presented further references as follows (the EPO indicates that the art cited in the response was provided on December 16, 2004, a day after being cited in the Letter Dealing with Oral Proceedings):

defined and well-known concept, frequently used for characterising this kind of curves:

- D10: Heinz-Otto Peitgen, *et al.*, “CHAOS AND FRACTALS – New Frontiers of Science” (1992), pp. 212-216, 387-388
- D11: Paul S. Addison, “FRACTALS AND CHAOS – An Illustrated Course” (Institute of Physics Publishing, Bristol and Philadelphia; IOP Publishing 1997), pp. 30, 31 & 33
- D12: Kenneth Falconer, “FRACTAL GEOMETRY – Mathematical Foundations and Applications” (2nd edition) (John Wiley & Sons. Ltd., 2003) (*the first edition is from 1990*)

(3.1.3) It is clear from the above documents (cf., for example:

D10, page 212, four last lines 4-8 after Fig.4.29: “*The box-counting dimension proposes a systematic measurement, which applies to any structure in the plane...*”

D10, page 214, last paragraph: “*The box-counting dimension is the one most used in measurements in all the sciences. The reason for its dominance lies in the easy and automatic computability by machine. It is straightforward to count boxes and to maintain statistics allowing dimensional calculation. The program can be carried out for shapes with and without self-similarity” (emphasis added).*

D11, page 30: “*The box counting dimension...*”

D12, page 41: “*Box-counting or box dimension is one of the most widely used dimensions. Its popularity is largely due to its relative ease of mathematical calculation and empirical estimation.*”)

that the box-counting dimension is a well-known feature suitable for characterising highly convoluted curves, applicable both to fractal curves (with self-similarity) and to curves not having a self-similar structure.

Thus, it is respectfully submitted that the feature “box-counting dimension larger than one” is clear to the person skilled in the art.

kk. After citing these references, Fractus’ foreign patent attorneys from Herrero & Asociados provided even further references to the EPO, indicating:

(3.2) Just to illustrate the frequent use of the box-counting dimension for characterising or analysing curves in a large number of different technical fields, we submit copies of the following additional documents:

- D13: Yuan Y. Tang, *et al.*, "The Application of Fractal Analysis to Feature Extraction" (1999 IEEE), pp. 875-879
- D14: Vincent Ng, *et al.*, "Diagnosis of Melanoma with Fractal Dimensions" (IEEE TENCON'93 / Beijing), pp. 514-517
- D15: S. Kobayashi, *et al.*, "Estimation of 3D Fractal Dimension of Real Electrical Tree Patterns" (IEEE 1994; Proceedings of the 4th International

ll. With regard to the lack of "Novelty and Inventive Step" rejections, the Fractus' foreign patent attorneys from Herrero & Asociados argued that (the D1 reference being Publication WO 9706578, listing Cohen as inventor):

D1 does not disclose or suggest any specific restriction on the length of the "segments" making up the ("self-similarity") curves of the antenna structure.

Further, D1 does not disclose or suggest any restrictions on the box-counting dimensions of the ("self-similarity") curves used.

In addition, D1 does not disclose or suggest a patch-antenna.

mm. Because the same "space-filling curve" features and "box-counting dimension" features were contained in EP Application No. 00909089.5 and U.S. applications for the Space Filling Miniature Patent Family, a U.S. patent examiner would have wanted to review and consider a copy of the December 15, 2004 Letter Dealing with Oral Proceedings and the references cited therewith. Particularly, a U.S. patent examiner would use the information in the preceding sentence of this subparagraph to establish unpatentability of claims in the applications of the Space Filling Miniature Patent Family (namely, the "space-filling curve" claims and "box-counting dimension" claims). Therefore, the information in the preceding subparagraph was material to the "space-filling curve" claim features and the "box-counting dimension" claim features in the Space Filling Miniature Patent Family.

nn. Upon information and belief, one or more of Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros prepared the information for the

December 15, 2004 Letter Dealing with Oral Proceedings. Furthermore, upon information and belief, one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros received a copy of the information in the December 15, 2004 Letter Dealing with Oral Proceedings. However, one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros withheld the information in the December 15, 2004 Letter Dealing with Oral Proceedings from the USPTO.

oo. In January of 2005, in EP Application No. 00909089.5, Fractus representatives, including Jones Day attorney Roland Brachmann and inventor and employee, Carles Puente Baliarda, attended the oral proceedings before the examining division of the EPO. During the oral proceedings, numerous amendments were negotiated to the then-pending “box-counting dimension” claims to overcome the art and other rejections. According to the minutes of this oral proceeding, novelty in the amended claims over the repeatedly applied Publication WO 9706578 (listing Cohen as inventor) lay in the addition of a “patch antenna parallel to a ground plane” (a featured incorporated from Claim 9) — not the “space-filling curve” features or the “box-counting dimension” features.

pp. Because the same “space-filling curve” features and “box-counting dimension” features were contained in EP Application No. 00909089.5 and U.S. Space-Filling Miniature Family applications, a U.S. patent examiner would have wanted to review and consider a copy of the minutes from this oral proceeding, which specifically found that the “space-filling curve” and “box-counting dimension” features were not novel over Publication WO 9706578 (listing Cohen as inventor). Particularly, a U.S. patent examiner would use the

information in the preceding sentence of this subparagraph to establish unpatentability of claims in the applications of the Space Filling Miniature Patent Family (namely, the “space-filling curve” claims and “box-counting dimension” claims). Therefore, the information in the minutes from the January 2005 oral proceeding of EP Application No. 00909089.5 was material to the “space-filling curve” claim features and the “box-counting dimension” claim features in the Space Filling Miniature Patent Family.

qq. Upon information and belief, one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros received the minutes from the January 2005 oral proceeding (with Roland Brachmann of Jones Day, and Carles Puente Baliarda actually having been present at the oral proceeding). However, one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros withheld this information from the USPTO.

rr. The first substantive response in the Space Filling Miniature Patent Family in the U.S. occurred on March 17, 2005 — after the final January 2005 prosecution oral proceeding in EP Application No. 00909089.5 described in the preceding subparagraphs. Accordingly, one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros had ample opportunity to provide the USPTO with material information previously received and/or transmitted to the European Patent office in the prosecution of the EP Application No. 00909089.5. However, because of the prosecution difficulties encountered as identified in the preceding subparagraphs and because of the narrow claims ultimately granted,

upon information and belief, one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros withheld the material EPO communications in EP Application No. 00909089.5 from the USPTO in its examination of the Space Filling Miniature Patent Family.

ss. The USPTO would have wanted to be made aware of at least the following material communications in EP Application No. 00909089.5, all of which occurred prior to the first substantive response in the Space Filling Miniature Patent Family in the United States:

August 14, 2003 Reply to Examination Report: Fractus supplied the EPO references directed to the “box-counting dimension” feature. Fractus additionally provided the EPO a tutorial on Fractus’ method of calculating a “box-counting dimension.” Fractus additionally made arguments concerning an alleged distinction between the “box-counting dimension” feature of the claims and Publication WO 9706578’s “fractal dimension.”

October 28, 2004 Summons: The EPO issued a Summons. The Summons reiterated the “Lack of Clarity” argument, provided a new “Lack of Disclosure” argument; and maintained a rejection of the “space-filling curve” and “box-counting dimension greater than one claims” based on Publication WO 9706578.

December 15, 2004 Letter Dealing with Oral Proceedings: Fractus filed a Letter Dealing with Oral Proceedings. In this Letter Dealing with Oral Proceedings, Fractus provided further references directed to the “box-counting dimension” feature of the claims. Fractus additionally provided arguments concerning how Publication WO 9706578 allegedly does not disclose the “box-counting dimension” and “patch antenna” feature of the claims.

January 2005 Minutes from Oral Proceedings: Fractus negotiated at Oral proceedings to get claims allowed. The Minutes from the Oral Proceedings indicated that novelty lies in “patch antenna” claim feature — not the “box-counting dimension” claim feature.

tt. However, one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros never provided any of these communications to the

USPTO. Without such communications, Examiner Nguyen at the USPTO determined that the “box-counting dimension greater than one” claim feature was novel — a finding contrary to multiple rejections at the EPO.

uu. Instead of apprising the USPTO of these EPO communications, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros decided to remain silent and take claims that Examiner Nguyen in the U.S. (in the ‘635 Patent Application of the Space Filling Miniature Family) identified as being allowable in a December 13, 2004 rejection, for example, Claim 2.

vv. Of the claims identified as being allowable, Examiner Nguyen indicated that the cited references did not include the feature of a “box-counting dimension being greater than one” (e.g., as contained in Dependent Claim 2). This is the exact same feature that one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros knew the EPO — armed with the tutorial and other information not disclosed to the USPTO — decided on multiple occasions was disclosed by Publication WO 9706578 (listing Cohen as inventor) as indicated at a minimum by the October 28, 2004 Summons and minutes from the January 2005 oral proceeding, both of which were not disclosed to Examiner Nguyen.

ww. Additionally, the limitation of “box-counting dimension being greater than one” (e.g., as contained in dependent claim 2 and which Examiner Nguyen, without the tutorial in hand, believed to be a patentable feature) was a meaningless limitation.

xx. Any line with at least one curve or bend must necessarily have a box counting dimension of greater than one.

yy. On information and belief, the other limitations of then-pending claim 1, by their requirements of the antenna geometry (as a space filling curve), necessarily already required a “box-counting dimension being greater than one” even before that limitation was explicitly added to the claim.

zz. Without the tutorial in hand, Examiner Nguyen did not appreciate this fact, and also did not appreciate that the prior art of record actually disclosed a “box-counting dimension being greater than one.” One or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros took advantage of these facts, and proceeded to take claim 1, amended to include the limitation from claim 2 of “box-counting dimension being greater than one.”

aaa. Additionally, in the minutes of the January 29, 2005 Oral Proceedings in EP Application No. 00909089.5, a European counterpart patent, the European Patent Office explained with respect to the box-counting dimension:

A line has a dimension of “1” and an area has a dimension of “2”. For the infinite number of boxes the box-counting dimension of pure mathematics lies between 1 and 2.

(Annex 2 to Minutes of January 19, 2005 Oral Proceedings, Paragraph 1)

bbb. However, one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros did not disclose the minutes of the January 29, 2005 Oral Proceedings in EP Application No. 00909089.5 to Examiner Nguyen. Instead, they took claims allowed by Examiner Nguyen for which Examiner Nguyen indicated the novel feature was the “box-counting dimension being greater than one.”

ccc. In summary, the “box-counting dimension being greater than one” or the so-called “grid-dimension curve” feature was presented in claims to three different examiners as follows:

EP Application No. 00909089.5: On August 14, 2003, in a Reply to Examination Report, Fractus’ foreign patent attorneys from Herrero & Asociados provided the EPO a tutorial on Fractus’ method of calculating a box-counting dimension. Herrero & Asociados additionally argued that the box-counting dimension feature was novel.

Ultimate Outcome: With the supplied tutorial, despite Fractus’ argument to the contrary, the EPO determined that the feature of a space-filling curve with a box-counting being greater than one was not novel.

Application leading to the ‘675 Patent: Concerned about the lack of understanding for the box-counting dimension feature, Fractus adds the tutorial of August 14, 2003 into the application for the ‘675 Patent, changing the term “box-counting dimension” to “grid dimension” and defining a grid-dimension [or box-counting dimension] greater than one as a “grid dimension curve.”

Ultimate Outcome: With the supplied tutorial, despite Fractus’ argument to the contrary, Examiner Wimer at the USPTO determined that the “grid-dimension curve” is not novel, but rather disclosed by the ‘114 Patent. The first rejection was received October 4, 2004 and the second rejection was received April 7, 2005.

‘635 Patent Application: On December 13, 2004, without the supplied tutorial or information from the prosecution of the EP Application No. 00909089.5 or the application leading to the ‘675 Patent, Examiner Nguyen mistakenly indicated that claims with a “box-counting dimension greater than one” are allowable.

Ultimate Outcome: Fractus chose not to disclose the tutorial or information that occurred in EP Application No. 00909089.5 or the application leading to the ‘675 Patent, but rather chose to takes the claims identified by Examiner Nguyen as novel — those with the box-counting dimension greater than one — fully aware that this “limitation” was in fact a meaningless one which did not distinguish the claims from the prior art.

ddd. As seen above, of the three examiners presented with the claim feature of the “box-counting dimension being greater than one,” two found such a feature anticipated or obvious. Both of those examiners were supplied highly material information (including the tutorial). The one examiner, Examiner Nguyen, who was not supplied this

material information from the prosecution in EP Application No. 00909089.5 (including the tutorial and the EPO's statements that the box-counting dimension for any curve would be greater than one) or the application leading to the '675 Patent determined that this "box-counting dimension being greater than one" was novel and not disclosed by the art of the record.

eee. The communications to and from the EPO in EP Application No. 00909089.5 (the foreign counterpart to the '635 Patent) were highly material to the claims of the '635 Patent Application, the '850 Patent, and the '822 Patent, for at least the following reasons:

- There were common claim features in each of the patent applications: Each of the EP Application No. 00909089.5, the '675 Patent, the '635 Patent Application, the '850 Patent, and the '822 Patent include or included common claim features of the "space-filling curve" and the "box-counting dimension" (which Applicants sometimes referred to as a "grid-dimension" or a "grid dimension curve" – where the "grid-dimension" is greater than one).
- Three different examiners examined these patent applications: An EPO Examiner examined EP Application No. 00909089.5; Examiner Wimer examined the application leading to the '675 Patent; and Examiner Nguyen examined the '635 Patent Application, and the applications leading to the '850 Patent and the '822 Patent.
- Applicants provided references and a "tutorial" to the EPO Examiner to respond to the EPO Examiner's indications that the common claim features were unclear: On August 14, 2003, in EP Application No. 00909089.5, in response to "Lack of Clarity" rejections, Fractus supplied the EPO references directed to the "box-counting dimension" feature. Fractus additionally provided the EPO a tutorial on Fractus' method of calculating a "box-counting dimension." Fractus additionally made arguments concerning an alleged distinction between the "box-counting dimension" feature of the claims and Publication WO 9706578's "fractal dimension." At this time, the common claim features ("space-filling curve" feature and "box-counting dimension" feature) were present in the co-pending '635 Patent Application.
- Applicants embedded the "tutorial" provided to the EPO Examiner into new U.S. Applications examined by a First U.S. Examiner: On August 24, 2003, Joseph Sauer of Jones Day filed an application leading to the '675 Patent. The specification of the application leading to the '675 Patent included the box-counting dimension tutorial supplied to the EPO on August 14, 2003. The term "grid dimension" is substituted for "box-counting dimension." The application leading to the '675 Patent is assigned to Examiner Wimer.

- Having been provided the “tutorial,” the First U.S. Examiner indicated that the ‘114 Patent disclosed the common claim features: On October 4, 2004, in the application leading to the ‘675 Patent, Examiner Wimer indicated that the “space-filling curve” claim feature and “box-counting dimension” claim feature were disclosed by a single reference, the ‘114 Patent. At this time, the common claim features (the “space-filling curve” claim feature and the “box-counting dimension” claim feature) were present in the co-pending ‘635 Patent Application.
- The EPO Examiner again indicated that common claim features are unclear and that the common claim feature are not novel: On October 28, 2004, in EP Application No. 00909089.5, the EPO issued a Summons. The Summons reiterated the “Lack of Clarity” arguments, provided a new “Lack of Disclosure” argument; and maintained a rejection of the “space-filling curve” and “box-counting dimension greater than one claims” based on Publication WO 9706578. At this time, the common claim features (the “space-filling curve” claim feature and the “box-counting dimension” claim feature) were present in the co-pending ‘635 Patent Application.
- Contrary to findings by the First U.S. Examiner and the EPO Examiner, a Second U.S. Examiner — unaware of the ‘114 Patent, the “tutorial,” or the rejections by the other two examiners — found that the cited art did not disclose the common claim features: On December 13, 2004, in the ‘635 Patent Application, Examiner Nguyen (unaware of the ‘114 Patent or Examiner’s Wimer’s rejection or the EPO communications of August 14, 2003), identified claims with a “box-counting dimension greater than one” as allowable — a finding specifically contrary to Examiner Wimer’s finding for the exact same claim feature and the EPO’s finding for the exact same claim feature.
- Applicants provided further references to the EPO Examiner to respond to indications that the common claim features were unclear and further argued alleged points of novelty: On December 15, 2004, in EP Application No. 00909089.5, Fractus filed a Letter Dealing with Oral Proceedings. In this Letter Dealing with Oral Proceedings, Fractus provided further references directed to the “box-counting dimension” feature of the claims. Fractus additionally provided arguments concerning how Publication WO 9706578 allegedly does not disclose the “box-counting dimension” and “patch antenna” feature of the claims. At this time, the common claim features (the “space-filling curve” claim feature and the “box-counting dimension” claim feature) were present in the co-pending ‘635 Patent Application.
- The EPO decided that the common claim features are not novel: In January of 2005, in EP Application No. 0090989.5, Fractus negotiates at Oral proceedings to get claims allowed. The Minutes from the Oral Proceedings indicate that the “box-counting dimension” feature is not novel, but rather the novelty lies in the “patch antenna” feature. At this time, the common claim features (the “space-filling curve” claim feature and the “box-counting dimension” claim feature) were present in the co-pending ‘635 Patent Application.
- Applicant presented an amendment to the common claim features to the First U.S. Examiner in attempts to overcome the ‘114 Patent: On January 6, 2005, in the application

leading to the '675 Patent, Joseph Sauer of Jones Day amended the "space-filling" curve claims in an attempt to distinguish them from the '114 Patent. Specifically, Joseph Sauer amended them to require the "space-filling curve" to include at least "two-hundred segments."

- Applicant took claims with the common claim features from the Second Examiner: On March 17, 2005, in the '635 Patent Application, Joseph Sauer of Jones Day took claims that Examiner Nguyen identified as allowable, namely those with a "box-counting dimension greater than one" – the same feature that Examiner Wimer previously found was disclosed by the '114 Patent and the same feature the EPO determined was not novel.
- The common claim features were presented to three examiners, and the two examiner that were provided the "tutorial" indicated that the common claim features were not novel: The "box-counting dimension" claim feature was presented in three applications: EP Application No. 00909089.5, the application leading to the '675 Patent, and the '635 Patent Application. Of these three applications, the "box-counting dimension" tutorial is withheld from one application, the '635 Patent Application. Examiner Nguyen of the '635 Patent finds claims allowable because the art allegedly does not disclose the "box-counting dimension" features. However, the other two examiners that were provided the tutorial (Examiner Wimer in the application leading to the '675 Patent, and the examiners of EP Application No. 0090989.5), reach an opposite conclusion — finding the box-counting dimension feature is not novel.

fff. The intent to deceive Examiner Nguyen and the USPTO by one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros (the "EPO Group Having a Duty of Candor") is also apparent by at least the following pattern of conduct:

- There were common claim features in each of the patent applications: Each of the EP Application No. 00909089.5, the '675 Patent, the '635 Patent Application, the '850 Patent, and the '822 Patent include or included common claim features of the "space-filling curve" and the "box-counting dimension" (which applicants sometimes referred to as a "grid-dimension" or a "grid dimension curve" – where the "grid-dimension" is greater than one).
- Three different examiners examined these patent applications: An EPO Examiner examined EP Application No. 00909089.5; Examiner Wimer examined the application leading to the '675 Patent; and Examiner Nguyen examined the '635 Patent Application and the applications leading to the '850 Patent and the '822 Patent.
- One or More of the EPO Group Having a Duty of Candor provided references and a "tutorial" to the EPO Examiner, but not to the Second U.S. Examiner: On August 14, 2003, in a Reply to Examination Report for EP Application No. 00909089.5, Fractus supplied the EPO references directed to the "box-counting dimension" feature. Fractus

additionally provided the EPO a tutorial on Fractus' method of calculating a "box-counting dimension." However, one or more of the EPO Group Having a Duty of Candor intentionally withheld this information from Examiner Nguyen at the USPTO.

- One or More of the EPO Group Having a Duty of Candor provided the "tutorial" in a specification to a First U.S. Examiner who determined that the common claim features were not novel, but they did not provide the "tutorial" to the Second U.S. Examiner: On August 24, 2003, concerned about the EPO "box-counting dimension" rejections, Joseph Sauer of Jones Day filed an application leading to the '675 Patent. The specification of the application leading to the '675 Patent included the box-counting dimension tutorial supplied to the EPO on August 14, 2003. The term "grid dimension" is substituted for "box-counting dimension." One or more of the EPO Group Having a Duty of Candor intentionally continued to withhold the tutorial supplied in the August 14, 2003 examination report from Examiner Nguyen at the USPTO. On October 4, 2004, in the application leading to the '675 Patent, Examiner Wimer indicated that the "space-filling curve" feature and "box-counting dimension" feature are disclosed by a single reference, the '114 Patent.
- One or More of the EPO Group Having a Duty of Candor intentionally withheld material information from the Second U.S. Examiner, including multiple EPO communications and references: One or More of the EPO Group Having a Duty of Candor intentionally withheld from Examiner Nguyen at least the following material information from the prosecution of EP Application No. 00909089.5: (1) Fractus' August 14, 2003 Reply to Examination report that included references and a tutorial on Fractus' method of calculating a "box-counting dimension" as an argument that the common claim features could be understood; (2) an October 28, 2004 Summons that articulated the EPO's "Lack of Clarity" and "Lack of Disclosure" arguments concerning the common claim features; (3) Fractus' December 15, 2003 Letter Dealing with Oral Proceedings that provided further references directed to the common claim features; and (4) the EPO's January 2005 Minutes from Oral Proceedings, which indicated the common claim features were not novel.
- The withholding of material information from the Second U.S. Examiner prompted the Second U.S. Examiner to reach a conclusion contrary to the First U.S. Examiner and the EPO Examiner: On December 13, 2004, in the '635 Patent Application, Examiner Nguyen (unaware of the '114 Patent or Examiner's Wimer's rejection based thereupon or the EPO communications of August 14, 2003), identified claims with a "box-counting dimension greater than one" as allowable – a finding specifically contrary to Examiner Wimer's finding for the exact same claim feature and the EPO's finding for the exact same claim feature.
- Despite the knowledge that two other examiners believed the common claim features were not novel, one or more of the EPO Group Having a Duty of Candor did not inform the Second U.S. Examiner of material information concerning such claim features; rather they took claims with the common claim features from the Second U.S. Examiner: On March 17, 2005, in the '635 Patent Application, Joseph Sauer of Jones Day took claims that Examiner Nguyen identified as allowable, namely those with a "box-counting

dimension greater than one” – the same claim feature Examiner Wimer found was disclosed by the ‘114 Patent and the EPO found was not novel, and which claim feature was found in the prior art and, in any event, did not further limit the claims that ultimately issued.

- The common claim features were presented to three examiners, and the two examiner that were provided the tutorial indicated that the common claim features were not novel: One or more of the EPO Group Having a Duty of Candor presented the “box-counting dimension” claim feature in three applications: EP Application No. 00909089.5, the application leading to the ‘675 Patent, and the ‘635 Patent Application. Of these three applications, the “box-counting dimension” tutorial is withheld from one application, the ‘635 Patent Application. Examiner Nguyen of the ‘635 Patent Application found claims allowable because the art allegedly does not disclose the “box-counting dimension” features. However, the other two examiners that were provided the tutorial (Examiner Wimer in the application leading to the ‘675 Patent, and the EPO Examiner of EP Application No. 0090989.5), reach an opposite conclusion – finding that the box-counting dimension feature is not novel. Accordingly, the intentional withholding of this tutorial was intended to deceive – and actually deceived – Examiner Nguyen.
- One or more of the EPO Group Having a Duty of Candor never disclosed the material communications from EP Application No. 00909089.5 (including references) to the Second U.S. Examiner: Ultimately, Examiner Nguyen was never provided the August 14, 2003 tutorial or references or post-August 14, 2003 communication with the EPO or references in EP Application No. 00909089.5 for either the ‘635 Patent Application or the applications leading to the ‘850 Patent in the ‘822 Patent.

ggg. Because the highly material EPO communications in EP Application No. 00909089.5 (including the August 14, 2003 tutorial and box-counting dimension references) were knowingly withheld from the prosecution of the Space Filling Miniature Patent Family, one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros intentionally deceived Examiner Nguyen and the USPTO. As a result, the patents in the Space Filling Miniature Patent Family are unenforceable due to inequitable conduct.

hhh. Any inequitable conduct that occurred in the ‘635 Patent Application would spread to children that claimed priority to such an application. Because the same claim features (e.g., space-filling curve and box-counting dimension greater than one) included in the ‘635 Patent Application were also included in the ‘850 Patent and the ‘822

Patent, the inequitable conduct with respect to such features in the ‘635 Patent Application infected the ‘850 Patent and the ‘822 Patent. Additionally, the failure to cite the EPO communications and references in EP Application No. 00909089.5 (including the August 14, 2003 tutorial) in the prosecution of the applications leading to the ‘850 Patent and the ‘822 Patents separately constitutes a basis of inequitable conduct with respect to the ‘850 Patent and the ‘822 Patent.

Those Having a Duty of Candor and Good Faith in Dealing with the USPTO Improperly Withheld An Article and/or Other Material Information that was Authored by Jordi Romeu Robert, Who Was Improperly Excluded as an Inventor in the Multilevel Antenna Patent Family, From the Prosecution of the ‘850 Patent, the ‘822 Patent, and the Parent Application of the ‘850 Patent and the ‘822 Patent.

165. The ‘850 Patent and the ‘822 Patent (of the Space Filling Miniature Patent Family) are additionally unenforceable because Applicants and/or their patent attorneys and/or others substantively involved in prosecution before the USPTO withheld highly material prior art and/or other highly material information from Space Filling Miniature Patent Family applications and with an intent to deceive the USPTO, by acts including improperly excluding as an inventor the holder of that prior art, Professor Jordi Romeu Robert, from the Multilevel Antenna Patent Family, as follows:

a. As set forth in detail in Paragraph 155 above, incorporated herein by reference, Professor Romeu was improperly removed as an inventor from the Multilevel Antenna Patent Family.

b. In 2003, after Professor Romeu had left Fractus, he published a paper with two co-authors who were also students and/or professors at UPC, entitled “Are Space-Filling Curves Efficient Small Antennas?” (IEEE Antennas and Wireless Propagation Letters, Vol. 2, 2003) (the “Romeu Paper”). The paper concluded that the behavior of space-filling curves as antennas “is not exceptional when compared with other intuitively-generated

antennas.” The research that formed the basis for the Romeu Paper (the “Romeu Paper Research”), which began at least as early as 2002, further concluded that “space-filling prefractal antennas are not suitable to design efficient miniature antennas,” that “fractal dimension seems not to play a role in the behavior of the antennas as experiences with prefractals with the same fractal dimension show,” and finally that “other intuitively generated Euclidean configurations perform better than prefractal structures with the same size-reduction ratios [], and even admit more degrees of freedom for the antenna designer.”

c. Ultimately, the Romeu Paper concluded that the very sorts of antenna geometries that Fractus claims in the Space Filling Miniature Patent Family, and claims to be superior in their designs, are actually no better than any other antenna geometries that a typical antenna designer might choose.

d. Professor Romeu’s findings contradict statements in the ‘850 Patent and the ‘822 Patent regarding purported advantages of the space-filling curve designs disclosed and claimed therein. For example, the patents of the Space Filling Miniature Patent Family emphasize the “advantage[] of using SFC curves in the physical shaping of the antenna,” and reference the size reduction benefits. (See, e.g., ‘850 Patent at 3:4-11; 8:4-9). However, the Romeu Paper and Romeu Paper Research directly contradict at least this stated “advantage.”

e. On information and belief, the decision to remove Professor Romeu as an inventor from the Multilevel Antenna Patent Family was made, at least in part, to obscure and withhold the Romeu Paper Research and/or other material information in Professor Romeu’s possession from the USPTO in the Space Filling Miniature Patent Family.

f. Further, upon information and belief, one or more of Francisco Carpintero Lopez, Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana

of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros discussed and shared prosecution strategies amongst one another in the prosecution of Fractus patent applications, and made a decision to remove Professor Romeu as an inventor even though Professor Romeu contributed to the claimed inventions in the Multilevel Antenna Patent Family.

g. On information and belief, the statements in the Romeu Paper and other documents in Professor Romeu's control (including at least other documentation of his research) was material to the subject matter of at least the Space Filling Miniature Patent Family.

h. Professor Romeu had co-authored more than 20 papers with Carles Puente Baliarda, Carmen Borja Borau, Jaume Anguera Pros, and/or Jordi Soler Castany relating to antennas. Professor Romeu is also named as a joint inventor with Carles Puente Baliarda on at least Spanish Patent ES2112163, entitled "Antenas Fractales O Multifractales" (translated, "Fractal and Multifractal Antennas"), the application for which was filed on May 19, 1995 and which issued on March 16, 1998. Professor Romeu is also named as a joint inventor with Carles Puente Baliarda, Carmen Borja Borau and Jaume Anguera Pros on at least Spanish Patent ES2142280, entitled "Unas antenas multitriangulares duales para telefonía celular GSM y DCS" (translated, "Dual multi-triangular antennas for GSM and DCS cellular telephony"), the application for which was filed on May 6, 1998 and which issued on November 16, 2000. Furthermore, Professor Romeu is also named as a joint inventor, along with Carles Puente Baliarda, of PCT/ES99/00343. Accordingly, based on the close working relationship between Professor Romeu and the other Fractus inventors, on information and belief, one or more of Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros would have been

aware of the research that Professor Romeu was involved with, including the Romeu Paper Research which culminated in the Romeu Paper.

i. Additionally, on information and belief, Professor Romeu was one of the original Fractus Founders in 1999. The documents produced by Fractus in this litigation and identified pursuant to P.R. 3-2(b), most of which identify Professor Romeu by name, further suggest that Professor Romeu worked closely with the other Fractus inventors, and further suggest that one or more of Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros would have been aware of the research that Professor Romeu was involved with, including the Romeu Paper Research which culminated in the Romeu Paper.

j. A link to the Romeu Paper is provided on the FractalComs website, at <http://www.tsc.upc.es/fractalcoms/>, and, on information and belief, was provided to one or more of Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros, Harris Wolin, and/or others owing a duty of candor and good faith in dealing with the USPTO while the applications for the '850 Patent and/or '822 Patent were still pending. As indicated in Paragraph 155 above, on information and belief, one or more of Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros was aware of activities at FractalComs and the FractalComs website, because Fractus sent a letter to FractalComs in or around 2001 informing FractalComs that Fractus purportedly owned intellectual property rights in fractal antennas, along with the registered trademark for "Fractal Antennas."

k. Rather than disclose the Romeu Article and/or other material documents or information to the USPTO, one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros instead removed Professor Romeu as an

inventor from the Multilevel Antenna Patent Family, as set forth in detail in Paragraph 155 above. Professor Romeu was then no longer identified as an inventor on any of the then-pending Fractus patent applications, despite his myriad of research and/or publishing work performed with one or more of the Fractus Founders. These actions, coupled with the withholding of the material Romeu Paper and Romeu Paper Research, constitute evidence of intent to deceive the USPTO by one or more people having a duty of candor.

l. Because of the relevance of the Romeu Paper and the Romeu Paper Research to the claimed subject matter (in particular, the “space-filling curve” claim features, and any other Fractus patents having claims with “space-filling curve” limitations), a patent examiner of the applications leading to the ‘850 Patent and the ‘822 Patent would have wanted to know of the Romeu Article and/or other material documents or information in the possession of Professor Romeu, would have wanted to know that at least one of the Fractus Founders determined that space-filling curve designs were not advantageous over other known designs, and would have wanted to know that certain statements in the ‘850 Patent and ‘822 Patent specifications were false.

m. On information and belief, the Romeu Paper and/or Romeu Paper Research were thus highly material to the claims of the ‘850 Patent and the ‘822 Patent.

n. The intent to deceive the USPTO by one or more of Roland Brachmann of Jones Day, Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros is also apparent based on the above-described pattern of conduct.

o. As a result, the patents in the Space Filling Miniature Patent Family are unenforceable due to inequitable conduct.

Those Having a Duty of Candor and Good Faith in Dealing with the USPTO Withheld United States Patent Nos. 6,122,533 and 4,536,725 and Rejections Based Thereupon, Received in an Application for United States Patent No. 7,245,196, in the Prosecution of the '850 Patent, the '822 Patent, and the Parent Application of the '850 Patent and the '822 Patent.

166. The '850 Patent and the '822 Patent are unenforceable because Applicants and/or their patent attorneys and/or others substantively involved in prosecution before the USPTO knowingly withheld with an intent to deceive highly material information received in a related Fractus application as follows:

a. As discussed below, information was withheld from all of the applications in the Space Filling Miniature Patent Family. This information was material to claims in all of the applications in the Space Filling Miniature Patent Family.

b. David Maiorana and Joseph Sauer of the Jones Day law firm were identified as Fractus' Patent Attorneys and were substantively involved in the prosecution of the Space Filling Miniature Patent Family. Both Mr. Maiorana and Mr. Sauer worked in the Cleveland office of Jones Day. Additionally, upon information and belief, Mr. Maiorana and Mr. Sauer discussed and shared prosecution strategies amongst one another in the prosecution of multiple Fractus patent applications, including the applications in the Space Filling Miniature Patent Family. As a result, Mr. Maiorana and Mr. Sauer had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose material information to the USPTO in the prosecution of Fractus patent applications, including the applications in the Space Filling Miniature Patent Family.

c. David Maiorana of Jones Day and Joseph Sauer of Jones Day prosecuted at least the following two "space-filling curve" applications for Fractus: the '635 Patent Application and another application leading to U.S. Patent No. 7,245,196 (the '196 Patent).

d. Both of Carles Puente Baliarda and Edouard Jean Louis Rozan were listed as inventors on each and every one of the following applications/patents: the ‘196 Patent, the ‘850 Patent, the ‘822 Patent, and the ‘635 Patent Application. Additionally, upon information and belief, one or both of Carles Puente Baliarda and Edouard Jean Louis were substantively involved in one or more of the prosecution of the applications leading to the ‘196 Patent, the ‘635 Patent Application, the ‘850 Patent and the ‘822 Patent. Accordingly, Carles Puente Baliarda and Edouard Jean Louis each had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose material information to the USPTO for each of the ‘635 Patent Application and the applications leading to the ‘196 Patent, the ‘850 Patent, and the ‘822 Patent.

e. The application leading to the ‘196 Patent, the ‘635 Patent Application, the ‘850 Patent and the ‘822 Patent are related because all include or included claims directed towards a “space-filling curve.” The following are non-limiting examples:

- ‘196 Patent: In the application as filed, Claim 1 included a “space-filling curve” feature (abbreviated as an “SFC”). In a preliminary amendment, at least Claims 7-49 were amended to recite or depend from a claim that recited a “SFC.” Claim 1 further recited, the “SFC” is “composed by at least ten connected straight segments, wherein said segments are smaller than a tenth of the operating free-space wave length.”
- ‘635 Patent Application: In the application as filed, independent Claim 1 and its dependent claims included a “space-filling curve” feature. Claim 1 further recited, the “SFC” is “composed by at least ten connected straight segments, wherein said segments are smaller than a tenth of the operating free-space wave length.”
- ‘850 Patent: In a preliminary amendment, Claims 1-16 were cancelled (which correspond to the originally filed claims in the ‘635 Patent Application) and Claims 17-106 were added. All of Claims 17-106 included a “space-filling curve” feature. Claim 17 further recited, the “SFC including at least ten connected segments, wherein said segments are each smaller than a tenth of an operating free-space wavelength.”
- ‘822 Patent: In a preliminary amendment, Claims 1-16 were cancelled (which correspond to the originally filed claims in the ‘635 Patent Application) and Claims 17-73 were added. Of these claims, at least independent Claim 55 included a “multi-segment curve”

feature. Upon information and belief, “multi-segment curve” and “space-filling curve” were used by Fractus to describe the same concept.

f. One or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis recognized the relatedness of the ‘635 Patent Application to the application leading to the ‘196 Patent.

g. As an example of the preceding subparagraph, Joseph Sauer of Jones Day filed the exact same Information Disclosure Statement (“IDS”) in each of the ‘635 Patent Application and the application leading to the ‘196 Patent. On February 24, 2003, Joseph Sauer of Jones Day filed these two identical IDSs respectively in the ‘635 Patent Application and the application leading to the ‘196 Patent.

h. Because of the relatedness of the claims of the application leading to the ‘196 Patent and the ‘635 Patent Application, any rejection or references applied in the application leading to the ‘196 Patent would have been material to the applications of the Space Filling Miniature Patent Family.

i. The ‘635 Patent Application was being examined by Examiner Hoang V. Nguyen whereas the application leading to the ‘196 Patent was being examined by Examiner Benny Lee. Examiner Nguyen also examined the applications leading to the ‘850 Patent and the ‘822 Patent.

j. Because of the relatedness of the claims of the application leading to the ‘196 Patent and the ‘635 Patent Application, Examiner Nguyen in his examination of the ‘635 Patent Application and the applications leading to the ‘850 Patent and the ‘822 Patent would have wanted to know of the rejections issued and/or references applied by Examiner Lee in his examination of the application leading to the ‘196 Patent.

k. On August 27, 2004, in the prosecution of the application leading to the '196 Patent, Examiner Lee of the USPTO issued an office action (addressed to David Maiorana of Jones Day), which was received by one or more of David Maiorana of Jones Day, Joseph Sauer of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis. Examiner Lee's rejection informed one or more of David Maiorana of Jones Day, Joseph Sauer of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis that U.S. Patent No. 6,122,533 (the "'533 Patent") anticipated Claims 1 and 25 of the application leading to the '196 Patent. In particular, the '533 Patent disclosed all the elements of Claims 1 and 25, including "a space filling curve" having "at least ten interconnected segments." Specifically, the '533 Patent was used in a 102(e) rejection of claims with the "space-filling curve" feature as follows, in part:

Claims 1, 25 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Zhang et al.

Zhang et al (fig. 9) discloses a resonator arrangement (e.g. 72a) which is comprised of a space filling curve comprising at least ten interconnected segments. Note that adjacent segments of the space-filling curve are configured such that any one segment is not straight relative to adjacent segments. Furthermore, note that any one segment of the space-filling curve only intersects and interconnects with adjacent segments at tip, which is rounded. Since the total length of each resonator is one-half wavelength, it stands to reason that the length of each of the at least ten segments inherently have a segment length to must be less than one-tenth wavelength. Note that a transmission line (78)

l. The '533 Patent was filed on June 27, 1997 and claims a priority date of June 28, 1996. Thus, the '533 Patent qualifies as prior art to the '635 Patent Application, the '850 Patent, and the '822 Patent pursuant to 35 U.S.C. §102(e).

m. At the same time, on August 27, 2004, the features of the "space-filling curve" and the "SFC" is "composed by at least ten connected straight segments, wherein

said segments are smaller than a tenth of the operating free-space wave length” were also present in the claims of the co-pending ‘635 Patent Application. Accordingly, the ‘533 Patent and the rejections based thereupon were highly material to the ‘635 Patent Application. Furthermore, the ‘533 Patent and rejections based thereupon were not cumulative to references already of record in the ‘635 Patent Application. At a minimum, Examiner Lee’s rejection based on the ‘533 Patent was not cumulative to references already of record in the ‘635 Patent Application. Notwithstanding this, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis withheld the ‘533 Patent and Examiner’s Lee’s rejection from Examiner Nguyen in the prosecution of the ‘635 Patent Application.

n. Despite previously citing the same references in both the application leading to the ‘196 Patent and the ‘635 Patent Application, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis withheld rejections and references received in the application leading to the ‘196 Patent from the prosecution of the ‘635 Patent Application.

o. Because the ‘635 Patent Application had not yet received a First Action on the Merits on August 27, 2004, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis had at least a first opportunity to disclose the ‘533 Patent (“First ‘533 Opportunity”) and the rejections based thereupon to Examiner Nguyen in the prosecution of ‘635 Patent Application. Specifically, an information disclosure statement without fee could have been filed in the ‘635 Patent Application between August 27, 2004 up until December 13, 2004 — the date of the First Action on the Merits for the ‘635 Patent Application. However, one or more of Joseph Sauer of Jones

Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis chose not to act on this First ‘533 Opportunity.

p. One or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis recognized the materiality of the ‘533 Patent to claims with the “space filling curve” feature. Specifically, on December 8, 2004, in response to Examiner Lee’s rejection in the application leading to the ‘196 Patent, Joseph Sauer of Jones Day amended the claims in attempts to distinguish them from the ‘533 Patent. In particular, Mr. Sauer cancelled Claim 1 which recited a “space filling curve composed by at least ten connected straight segments, wherein said segments are smaller than a tenth of the operating free-space wave length” and replaced it with Claim 51 which recited a “space filling curve (SFC) ... including at least twenty (20) connected straight segments, wherein said straight segments are each smaller than a tenth of the operating free-space wave length.” He also argued, as follows:

The Examiner rejected claims 1 and 25 under 35 U.S.C. 102 as being anticipated by US 6,122,533 to Zhang, et al. (Zhang). These claims have been cancelled.

New claim 51 differs from rejected claim 1 in at least two ways. First, new claim 51 recites a plurality of cascaded transmission line segments, with each of the cascaded segments forming a space-filling curve (SFC). One example of a transmission line with cascaded transmission line segments that each form a SFC is illustrated in Fig. 12. Second, new claim 51 recites a more-preferred embodiment in which the SFCs include at least twenty (20) straight segments, whereas cancelled claim 1 recited a SFC with at least ten (10) segments. This space-filling curve geometry enables operation at lower frequencies in the minimum possible space. The Zhang reference does not disclose or render obvious either of these limitations. For at least this reason, Applicants contend that new claims 51-62 are patentably distinct from Zhang.

q. Having just amended claims on December 8, 2004 to overcome the ‘114 Patent in the application leading to the ‘196 Patent, one or more of Joseph Sauer of Jones

Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis had a second opportunity to disclose the ‘533 Patent (“Second ‘533 Opportunity”) and the rejections based thereupon to Examiner Nguyen in the prosecution of ‘635 Patent Application, which still had not received a First Action on the Merits. However, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis chose not to act on this Second ‘533 Opportunity

r. One or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis recognized their duty to disclose material prior art cited in the application leading to the ‘196 Patent in other Fractus patent applications. On December 13, 2004, Joseph Sauer of Jones Day cited the ‘533 Patent in U.S. Patent Application No. 10/963,080 entitled “Multilevel Antenna.” Significantly, U.S. Patent Application No. 10/963,080 entitled “Multilevel Antenna” did not include “space-filling curve” claim features whereas the Space Filling Miniature Patent Family did include such claim features. However, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis withheld the ‘533 Patent from the prosecution of the applications for the Space Filling Miniature Patent Family.

s. On December 13, 2004, in the prosecution of the ‘635 Patent Application, Examiner Nguyen issued a First Action on the Merits (addressed to David Maiorana of Jones Day), which was received by one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis. Examiner Nguyen did not cite the ‘533 Patent. Accordingly, at this time, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis had a third opportunity to disclose the ‘533 Patent (“Third ‘533 Opportunity”) and the rejections

based thereupon to Examiner Nguyen in the prosecution of '635 Patent Application. However, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis chose not to act on this Third '533 Opportunity.

t. On March 2, 2005, Examiner Lee informed David Maiorana of Jones Day that the amendment submitted on December 8, 2004 was not entered in the application leading to the '196 Patent, because it was directed to a non-elected species. Accordingly, at this time, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis had a fourth opportunity to disclose the '533 Patent ("Fourth '533 Opportunity") and the rejections based thereupon to Examiner Nguyen in the prosecution of the '635 Patent Application. However, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis chose not to act on this Fourth '533 Opportunity.

u. On March 10, 2005, in response to Examiner Lee's correspondence of March 2, 2005 in the application leading to the '196 Patent, Joseph Sauer amended the claims in attempts to distinguish them from the '533 Patent. In particular, Mr. Sauer again replaced Claim 1 with a Claim 51 which recited a "space filling curve (SFC) ... including at least twenty (20) connected straight segments, wherein said straight segments are each smaller than a tenth of the operating free-space wave length." He also argued, as follows:

New claim 51 differs from claim 1, which was rejected for being anticipated by Zhang et al. in the Office Action of August 27, 2004, in at least two ways. First, new claim 51 recites a plurality of cascaded transmission line segments, with each of the cascaded segments forming a space-filling curve (SFC). An example of a transmission line with cascaded transmission line segments that each form a SFC is illustrated in Fig. 21. Second, new claim 51 recites an embodiment in which the SFCs include at least twenty (20) straight segments, whereas cancelled claim 1 recited a SFC with at least ten (10) segments. This space-filling curve geometry enables

v. Accordingly, at this time, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis had a fifth opportunity to disclose the ‘533 Patent (“Fifth ‘533 Opportunity”) and the rejections based thereupon to Examiner Nguyen in the prosecution of the ‘635 Patent Application. However, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis chose not to act on this Fifth ‘533 Opportunity.

w. Despite the knowledge of the ‘533 Patent and the knowledge of the rejections based thereupon, and the knowledge that similar claims had to be amended to attempt to overcome the ‘533 Patent in the application leading to the ‘196 Patent, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis did not inform Examiner Nguyen of the ‘533 Patent or the rejections based thereupon. Particularly, on March 17, 2005, merely seven days after making an amendment to overcome the ‘533 Patent in the application leading to the ‘196 Patent, in a response for the prosecution of the ‘635 Patent Application of the Space Filling Miniature Patent Family, instead of apprising Examiner Nguyen and the USPTO of the ‘533 Patent or the rejections recently received in the application leading to the ‘196 Patent, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis remained silent.

x. In the March 17, 2005 response for the ‘the ‘635 Patent Application, Joseph Sauer of Jones Day amended claims to recite a “SFC including at least ten connected straight segments.” Yet, just seven days earlier on March 10, 2005, in the application leading to the ‘196 Patent, Joseph Sauer of Jones Day attempted to overcome the ‘533 Patent by cancelling a rejected claim and adding a new claim that recited a “SFC including at least twenty (20) connected straight segments.” Accordingly, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis had a sixth opportunity to inform Examiner Nguyen of the ‘533 Patent (“Sixth ‘533 Opportunity”) and the rejections based thereupon. However, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis chose not to act on this Sixth ‘533 Opportunity.

y. The pattern of withholding information from the USPTO in the prosecution of the Space Filling Miniature Patent Family continued. On June 2, 2005, in the prosecution of the application leading to the ‘196 patent, Examiner Lee of the USPTO issued an office action, which was received by one or more of David Maiorana of Jones Day, Joseph Sauer of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis. Examiner Lee’s rejection informed one or more of David Maiorana of Jones Day, Joseph Sauer of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis that U.S. Patent No. 4,536,725 (the ‘725 Patent) anticipated Claims 51 and 62 of the application leading to the ‘196 patent. In particular, the ‘725 Patent disclosed all the elements of Claims 51 and 62, including “a space filling curve” having “at least twenty (20) connected straight segments.” Moreover, the ‘725 Patent was used in combination with the ‘533 Patent to reject Claim 52 pursuant to 35 U.S.C. §103(a).

z. The '725 Patent issued on August 20, 1985 and therefore qualifies as prior art to the '635 application, the '850 Patent, and the '822 Patent pursuant to 35 U.S.C. §102 (b).

aa. At this time, the '635 Patent Application had not yet issued as a patent. Therefore, with the rejection of June 2, 2005 described in the preceding subparagraph, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis had a seventh opportunity to inform Examiner Nguyen of the '533 Patent ("Seventh '533 Opportunity"), and a first opportunity to inform Examiner Nguyen of the '725 Patent ("First '725 Opportunity"), and the rejections based thereupon. However, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis chose not to act on this Seventh '533 Opportunity and this First '725 Opportunity.

bb. On July 18, 2005, Joseph Sauer of Jones Day responded to Examiner Lee's rejection of June 2, 2005 in the application leading to the '196 Patent. Accordingly, at this time, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis had an eighth opportunity to disclose the '533 Patent ("Eighth '533 Opportunity") and the rejections based thereupon and a second opportunity to disclose the '725 Patent ("Second '725 Opportunity") to Examiner Nguyen in the prosecution of the '635 Patent Application. However, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis chose not to act on these opportunities.

cc. On August 4, 2005, Examiner Lee issued an Advisory Action maintaining the rejection of Claims 51, 52, and 61. Accordingly, at this time, one or more of

Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis had a ninth opportunity to disclose the ‘533 Patent (“Ninth ‘533 Opportunity”) and the rejections based thereupon and a third opportunity to disclose the ‘725 Patent (“Third ‘725 Opportunity”) to Examiner Nguyen in the prosecution of the ‘635 Patent Application. However, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis chose not to act on these opportunities.

dd. On October 18, 2005, Examiner Nguyen mailed a correspondence to David Maiorana of Jones Day indicating that the ‘635 patent application went abandoned for failure to timely pay an issue fee.

ee. As identified in the preceding subparagraphs, during the fourteen month time period between August 27, 2004 and October 18, 2005, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis could have acted on any given day of any given week to inform Examiner Nguyen of the ‘533 Patent, the ‘725 Patent, and Examiner Lee’s rejections based thereupon. Significantly, during this fourteen month time period, there were at least nine distinct opportunities that served as prompting reminders to disclose the ‘533 Patent, and three distinct opportunities that served as prompting reminders to disclose the ‘725 Patent, and the rejections based thereupon to Examiner Nguyen in the examination of the ‘635 Patent Application.

ff. In the prosecution of the application leading to the ‘196 Patent, to ultimately overcome the highly material ‘533 Patent and ‘725 Patent, further amendments were made specifying “wherein each pair of adjacent straight segments are generally orthogonal to each other and comprise segments of a Hilbert curve.”

gg. Despite these opportunities and continued reminders of the materiality of the ‘533 Patent and the ‘725 Patent in the preceding subparagraphs and amendments made to overcome the ‘533 Patent and the ‘725 Patent in the prosecution of the application leading to the ‘196 Patent, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis repeatedly withheld the ‘533 Patent, the ‘725 Patent, and the multiple rejections based thereupon from Examiner Nguyen.

hh. Brian Walker of Howison & Arnott, LLP prosecuted the application leading to the ‘850 Patent and the application leading to the ‘822 Patent. Both of those patents include claims directed to the “space-filling curve” feature and/or the related “multi-segment curve” feature. On information and belief, Brian Walker of Howison & Arnott, LLP was made aware of the ‘533 Patent, the ‘725 Patent, and/or Examiner Lee’s rejections based on these references in the application leading to the ‘196 Patent. Despite repeated opportunities to disclose the ‘533 Patent, the ‘725 Patent, and Examiner Lee’s rejections during the prosecution of the ‘850 Patent and the ‘822 Patent, Brian Walker of Howison & Arnott, LLP withheld these references and rejections from Examiner Nguyen.

ii. As identified in the above subparagraphs, the ‘533 Patent, the ‘725 Patent and the rejections based thereupon (received in the prosecution of the application leading to the ‘196 Patent) were highly material to claims of the ‘635 Patent Application, the ‘850 Patent, and the ‘822 Patent.

jj. As identified in the above subparagraphs, the intent to deceive Examiner Nguyen and the USPTO by one or more of Joseph Sauer of Jones Day, David

Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis (the “Group Having a Duty of Candor”) is also apparent.

kk. Because the highly material ‘533 Patent, ‘725 Patent, and Examiner Lee’s rejections based thereupon were intentionally withheld from the prosecution of the Space Filling Miniature Patent Family (namely, Examiner Nguyen), one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda and Edouard Jean Louis deceived Examiner Nguyen and the USPTO. As a result, all of the patents in the Space Filling Miniature Patent Family are unenforceable due to inequitable conduct.

ll. Any inequitable conduct that occurred in the ‘635 Patent Application would spread to children that claimed priority to such an application. Because the same or related claim features included in the ‘635 Patent Application were also included in the ‘850 Patent and the ‘822 Patent, the inequitable conduct with respect to such claim features in the ‘635 Patent Application infected the ‘850 Patent and the ‘822 Patent. Additionally, the failure to cite the ‘533 Patent, the ‘725 Patent, and rejections based thereupon in the prosecution of the applications leading to the ‘850 Patent and the ‘822 Patents separately constitutes a basis of inequitable conduct with respect to the ‘850 Patent and the ‘822 Patent.

Those Having a Duty of Candor and Good Faith in Dealing with the USPTO Knowingly Misrepresented the State of the Art in the Prosecution of the ‘850 Patent, the ‘822 Patent, and the Parent Application of the ‘850 Patent and the ‘822 Patent and Intentionally Withheld Material References in the Parent Application of the ‘850 Patent and the ‘822 Patent

167. The ‘850 Patent and the ‘822 Patent are additionally unenforceable because Applicants and/or their patent attorneys and/or others substantively involved in the prosecution before the USPTO violated a duty of candor and good faith in dealing with the USPTO as follows:

a. At different points in time, at least Joseph Sauer of Jones Day; David Maiorana of Jones Day; James Finder of Ostrolenk, Faber, Gerb & Soffen, LLP; and William Gray III of Ostrolenk, Faber, Gerb & Soffen, LLP; and Brian Walker of Howison & Arnott, LLP prosecuted one or more applications in the Space Filling Miniature Patent Family (these individuals collectively referred to as the “Space Filling Prosecution Group”).

b. The individuals in the Space Filling Prosecution Group owed a duty of candor and good faith in dealing with the USPTO in the prosecution of applications in the Space Filling Miniature Patent Family.

c. Each of Carles Puente Baliarda, Edouard Jean Louis Rozan, and Jaime Anguera Pros (hereinafter, the “Space Filling Inventor Group”) were listed as inventors on the applications of the Space Filling Miniature Patent Family.

d. Each inventor in the Space Filling Inventor Group had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose material information to the USPTO.

e. Additionally, upon information and belief, one or more of the Space Filling Inventor Group were substantively involved in the prosecution of one or more applications in the Space Filling Miniature Patent Family.

f. The following statement is contained in applications of the Space Filling Miniature Patent Family (hereinafter the “Hilbert and Peano Statement,” emphasis added):

Some of the geometries described in the present invention are inspired in the geometries studied already in the XIX century by several mathematicians such as Giuseppe *Peano* and David *Hilbert*. In all said cases the curves were studied from the mathematical point of view but *were never used for any practical engineering application*.

g. On July 22, 2002, the inventors in the Space Filling Inventor Group each signed a declaration for applications in the Space Filling Miniature Patent Family stating among other things, “I hereby state that I have reviewed and understand the contents of the above identified specification . . .”.

h. Because of the signed declarations referenced in the preceding subparagraph, one or more of the inventors in the Space Filling Inventor Group was aware of the Hilbert and Peano Statement.

i. Upon information and belief, one or more of the inventors in the Space Filling Inventor Group requested that the Hilbert and Peano Statement be incorporated in applications of the Space Filling Miniature Patent Family.

j. The Hilbert and Peano Statement indicates that the “geometries” of Hilbert and Peano were “never used for any practical engineering application.” When read in context with the remainder of the specification, the Hilbert and Peano Statement thus also suggests to that the Space Filling Miniature Patents disclosed and claimed the first applications of Hilbert and Peano geometries to antennas.

k. The Hilbert and Peano statement was a misrepresentation of when Hilbert and Peano “geometries” were first introduced for antennas. The Puente Dissertation introduced Hilbert and Peano geometries for antennas more than two years before the purported priority date of applications in the Space Filling Miniature Patent Family

l. Because the Puente Dissertation bears a publication date of May 1997 — more than two years prior to the earliest alleged priority date of applications in the Space Filling Miniature Patent Family — the Puente Dissertation qualifies as prior art to each of the applications in the Space Filling Miniature Patent Family under 35 U.S.C. § 102(b).

m. Because Carles Puente Baliarda of the Space Filling Inventor Group introduced Hilbert and Peano geometries for antennas in the Puente Dissertation more than two years before filing an application on the same concept, he was barred from seeking patent protection for an antenna that had a Hilbert and/or Peano geometry.

n. Upon information and belief, one or more of the inventors in the Space Filling Inventor Group, individuals in the Space Filling Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO was aware of or had possession of the Puente Dissertation during the prosecution of applications in the Space Filling Miniature Patent Family.

o. Carles Puente Baliarda of the Space Filling Inventor Group was aware of the Puente Dissertation because he authored it.

p. Inventors in the Space Filling Inventor Group were aware of the Puente Dissertation because they cited the Puente Dissertation in papers they authored.

q. Example papers citing the Puente Dissertation that are authored by one or more of the inventors in the Space Filling Inventor Group include, but are not limited to:

- *Broadband Triple-Frequency Microstrip Patch Radiator Combining a Dual-Band Modified Sierpinski Fractal and a Monoband Antenna*; Anguera, J.; Martinez-Ortigosa, E.; Puente, C.; Borja, C.; Soler, J.; *Antennas and Propagation, IEEE Transactions on*, Volume: 54 , Issue: 11 , Part: 2; 2006 , Page(s): 3367 - 3373.
- *The Fractal Hubert Monopole: A Two-Dimensional Wire*, Anguera; J. Puente, C. Martinez, E. Rozan, E.; *MICROWAVE AND OPTICAL TECHNOLOGY LETTERS*; 2003, VOL 36; PART 2, pages 102-104.
- *The Koch Monopole: A Small Fractal Antenna*: Baliarda, C. P. Romeu, J. Cardama, A.; *IEEE TRANSACTIONS ON ANTENNAS AND PROPAGATION*; 2000, VOL 48; PART 11, pages 1773-1781
- *MOD-P SIERPINSKI FRACTAL MULTIBAND ANTENNA*; Soler, J. Romeu, J. Puente, C.; *PROCEEDINGS OF THE INTERNATIONAL SYMPOSIUM ON ANTENNAS AND PROPAGATION JAPAN*; 2000, VOL 3, pages 1075-1078.

- *Iterative network models to predict the performance of Sierpinski fractal antennas and networks*; Borja, C.; Puente, C.; Antennas and Propagation Society International Symposium, 1999. IEEE; 1999 , Page(s): 652 - 655 vol.1.

r. One or more of the inventors in the Space Filling Inventor Group, individuals in the Space Filling Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO knew or should have known that the Hilbert and Peano Statement was a mischaracterization of the state of the art.

s. The following are figures from the Puente Dissertation, which has a publication date of May 1997, and the Space Filling Miniature Patent Family, which has a purported priority date of January 19, 2000, each illustrating Hilbert curves:

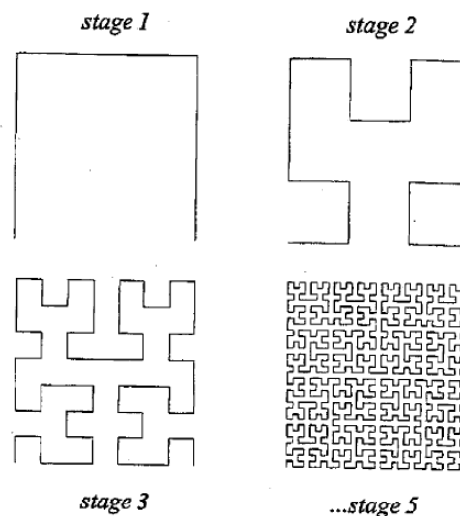
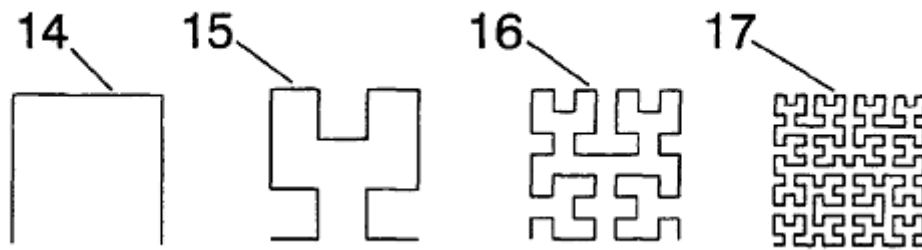


Fig. 2.6 The self-avoiding space-filling Hilbert curve

(Puente Dissertation, page 12, FRACTUSFH 010631)



(FIGURE 6 of U.S. Application No. 11/110,052 of the Space Filling Miniature Patent Family).

t. Among other statements, the Puente Dissertation states the following:

- “The aim of this thesis is to explore the feasibility of fractal shapes for the design of multiwavelength and small antenna.” Puente Dissertation, Page 3.
- “Many fractal curves such as the Koch, Minkowski, Peano and Hilbert curves can be fitted in a finite area although they have an infinite length.” Puente Dissertation, Page 3.
- “. . . [the Peano and Hilbert curves] are both space-filling curves, which means that they pass through every point in the squared region they are inscribed in.” Puente Dissertation, Page 12.
- “Other planar, non-fractal space filling like curves appeared as good small antennas too” Puente Dissertation, Page 261.

u. The teachings of the Puente Dissertation refute or are inconsistent with the Hilbert and Peano Statement. Accordingly, the Puente Dissertation is material to the prosecution of applications in the Space Filling Miniature Patent Family.

v. Given the above statements from the Puente Dissertation and other statements in the Puente Dissertation, one or more of the inventors in the Space Filling Inventor Group, individuals in the Space Filling Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO knew or should have known that the Hilbert and Peano “geometries” were not simply studied from the “mathematical point of view” as indicated

in the Hilbert and Peano Statement, but were specifically considered as being used in antennas in what the Puente Dissertation referred to as a “space-filling curve.”

w. At a minimum, given that Carles Puente Baliarda was the author of Puente Dissertation and the first-named inventor of Space Filling Miniature Patent Family, he knew that the Hilbert and Peano Statement was a mischaracterization as shown by his own words in his earlier publication, the Puente Dissertation.

x. The Puente Dissertation was not provided to the USPTO in the prosecution of the ‘635 Patent Application.

y. With the above actions, deceptive intent can be inferred. Here, Carles Puente Baliarda was intimately familiar with own dissertation and presented arguments in the Hilbert and Peano Statement that were inconsistent with the withheld that dissertation.

z. Not only did one or more of the inventors in the Space Filling Inventor Group, individuals in the Space Filling Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO mischaracterize the state of the art as it existed prior to the earliest alleged priority date of an application in the Space Filling Miniature Patent Family, one or more of the inventors in the Space Filling Inventor Group, individuals in the Space Filling Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO also withheld the Puente Dissertation from the USPTO in the prosecution of the ‘635 Patent Application.

aa. Although the Puente Dissertation was eventually provided to the USPTO in the prosecution of the application leading to the ‘850 Patent, it was not disclosed until after the USPTO had already allowed claims, and not until after issue fees were paid.

bb. The misrepresentation of the Hilbert and Peano Statement had the effect of obscuring the relevance of the Puente Dissertation. Because the Puente Dissertation is almost 300 pages long, relevant portions of the Puente Dissertation that refute or are inconsistent with the Hilbert and Peano Statement are not immediately apparent.

cc. One or more of the inventors in the Space Filling Inventor Group, individuals in the Space Filling Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO, including, but not limited to, Carles Puente Baliarda, had possession of the Puente Dissertation for up to nine years before disclosing it to the USPTO.

dd. Additionally, despite having access to or possession of the Puente Dissertation for four years in the prosecution of the applications of the Space Filling Miniature Patent Family, one or more of the inventors in the Space Filling Inventor Group, individuals in the Space Filling Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO withheld the Puente Dissertation and waited until after the USPTO had already allowed claims of the '850 Patent of the Space Filling Miniature Patent Family before providing the Puente Dissertation.

ee. Despite the ultimate disclosure of the Puente Dissertation in applications of the Space Filling Miniature Patent Family, the Hilbert and Peano Statement was never modified in the prosecution of applications in the Space Filling Miniature Patent Family.

ff. When the Puente Dissertation was finally provided to the PTO, one or more of the inventors in the Space Filling Inventor Group, individuals in the Space Filling Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO made no attempt to correct the misrepresentation of the Hilbert and Peano Statement in the specification. Rather, one or more of the inventors in the Space Filling Inventor Group,

individuals in the Space Filling Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO continued to perpetuate the mischaracterization provided by the Hilbert and Peano statement.

gg. The Puente Dissertation is material to the patentability of the claims in the Space Filling Miniature Patent Family at least because it anticipates or renders obvious one or more of the claims.

hh. By withholding the Puente Dissertation for four years during the substantive examination of the claims in the applications leading up to the '850 Patent, one or more of the inventors in the Space Filling Inventor Group, individuals in the Space Filling Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO sought to obtain allowance of claims that would not otherwise be allowable had the Puente Dissertation provided earlier.

ii. By mischaracterizing the state of the art and/or failing to correct this mischaracterization, one or more of the inventors in the Space Filling Inventor Group, individuals in the Space Filling Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO sought to obtain allowance of claims that would not otherwise be allowable absent the misrepresentation.

jj. One or more of the inventors in the Space Filling Inventor Group, individuals in the Space Filling Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO violated their duty of candor by knowingly mischaracterizing the state of the art, for example, with the Hilbert and Peano Statement and/or failing to correct the misrepresentation of the state of the art in the prosecution of applications of the Space Filling Miniature Patent Family.

168. Based on the allegations in Paragraphs 156 and 159-167 and their subparagraphs, incorporated herein by reference, the '850 Patent and the '822 Patent are unenforceable due to inequitable conduct of Applicants and/or their patent attorneys and/or others substantively involved in the prosecution before the USPTO.

COUNT FIVE

**DECLARATION OF UNENFORCEABILITY OF
U.S. PATENT NOS. 7,411,556 AND 7,312,762**

169. Samsung Telecommunications America, LLC repeats and incorporates by reference the allegations contained in paragraphs 1-168 above as if fully set forth herein.

170. One or both of the '556 Patent and the '762 Patent are unenforceable due to inequitable conduct.

171. An actual controversy exists between Samsung Telecommunications America, LLC and Fractus regarding the enforceability of the '556 Patent and the '762 Patent.

172. Samsung Telecommunications America, LLC is entitled to a declaratory judgment that the '556 Patent and/or the '762 Patent are unenforceable in part or in whole, for the reasons set forth in the following paragraphs:

Those Having a Duty of Candor and Good Faith in Dealing with the USPTO Withheld United States Patent No. 5,363,114 and Rejections Based Thereupon, Received in an Application for United States Patent No. 7,511,675, in the Prosecution of the '556 Patent and the '762 Patent.

173. The '556 Patent and the '762 Patent are unenforceable because Applicants and/or their patent attorneys and/or others substantively involved in prosecution before the USPTO knowingly withheld with an intent to deceive highly material information received in a related Fractus application as follows:

a. David Maiorana and Joseph Sauer of the Jones Day law firm prosecuted the applications leading to the '556 Patent and the '762 Patent. At a minimum, David

Maiorana of Jones Day filed the application leading to the ‘762 Patent and Joseph Sauer of Jones Day filed the application leading to the ‘556 Patent. Further, upon information and belief, Mr. Maiorana and Mr. Sauer discussed and shared prosecution strategies amongst one another in the prosecution of Fractus patent applications. Accordingly, Mr. Maiorana and Mr. Sauer had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose material information in the prosecution of the applications leading to the ‘556 Patent and the ‘762 Patent.

b. Carles Puente Baliarda was an inventor on each and every one of the following “space-filling curve” applications/patents: the ‘675 Patent, the ‘850 Patent, the ‘822 Patent, the ‘635 Patent Application, the ‘556 Patent and the ‘762 Patent. Accordingly, Carles Puente Baliarda had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose material information to the USPTO in the prosecution of the applications leading to the ‘556 Patent and the ‘762 Patent.

c. The ‘556 Patent and the ‘762 Patent — like the ‘675 Patent, the ‘850 Patent, the ‘822 Patent, and the ‘635 Patent Application — include or included claims with the “space-filling curve” feature. The following are non-limiting examples:

‘675 Patent: In the application as filed, claims 1-71 included a “space-filling curve” feature.

‘556 Patent: In the application as filed, dependent claim 6 recites, in part, that the “radiating arm forms a space-filling curve.”

‘762 Patent: As filed and as subsequently amended, dependent claim 10 includes “a space-filling curve” feature.

‘635 Patent Application: In the application as filed, independent claims 1 and 14 and their dependent claims included a “space-filling curve” feature.

‘850 Patent: In a preliminary amendment, claims 1-16 were cancelled (which correspond to the originally filed claims in the ‘635 Patent Application) and claims 17-106 were added. All of claims 17-106 included a “space-filling curve” feature.

'822 Patent: In a preliminary amendment, claims 1-16 were cancelled (which correspond to the originally filed claims in the '635 Patent Application) and claims 17-73 were added. Of these claims, at least independent claim 55 included a "multi-segment curve" feature.

d. Upon information and belief, Fractus treated the "multi-segment curve" claim feature as a similar feature to the "space-filling curve" claim feature.

e. Because of the relatedness of the claims of the application leading to the '675 Patent and the applications leading to the '556 Patent and the '762 Patent (in particular, the "space-filling curve" claim features), a patent examiner of the applications leading to the '556 Patent and the '762 Patent would have wanted to know of the rejections issued and/or references applied by the examiner of the application leading to the '675 Patent.

Application Leading to the '762 Patent

f. The application leading to the '762 Patent was filed on April 13, 2004 by David Maiorana of Jones Day. With this filing, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda recognized the relatedness of the '762 Patent to the Space Filling Miniature Patent Family (which included the '850 Patent, the '822 Patent, and the '635 Patent Application). Specifically, the specification of the '762 Patent recognized the "space-filling curve" feature of the Space Filling Miniature Patent Family as part of the geometry "according to the present invention" as follows (emphasis added):

The geometries of the loads that can be connected to the conducting surface ***according to the present invention*** are: a) A curve composed by a minimum of two segments and a maximum of nine segments which are connected in such a way that each segment forms an angle with their neighbours, i.e., no pair of adjacent segments define a larger straight segment. b) A straight segment or strip c) A straight strip with a polygonal shape d) ***A space-filling curve, Patent No. PCT/EP00/00411 entitled "Space-filling miniature antennas"***.

g. PCT Application No. EP00/004111 is the purported priority application for the Space Filling Miniature Patent Family.

h. Furthermore, in the early stages of prosecution of the application leading to the '762 Patent, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda submitted references that were previously submitted in the application leading to the '675 Patent for the application leading to the '762 Patent.

i. As an example of the preceding subparagraph, David Maiorana of Jones Day filed an information disclosure statement on August 31, 2004 in the application leading to the '762 Patent that contained references that were previously cited on February 10, 2004 in the application leading '675 Patent. See, for example, the below IDSs (February 10, 2004 for the application leading to the '675 Patent on the left and August 31, 2004 for the application leading to the '762 Patent on the right):

FORM PTO-2449 (Modified) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		Atty Docket No.: 151277600002	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary)		Serial No.: 10422,576	
(37 CFR 1.98(b))		Applicant(s): Puente Baliarda et al.	
		Filing Date: April 24, 2002	
		Group: Not Yet Assigned	
U.S. PATENT DOCUMENTS			
Exam. Init.	Patent Number	Issue Date	Patentee
2002/	0 0 0 0 9 4 0	01/03/2002	Moren et al.
2002/	0 1 0 9 6 3 3	06/15/2002	Gu et al.
2002/	0 1 7 5 8 6 6	11/20/2002	Gunn
3 5	2 1 2 8 4	07/21/1970	Shelton, Jr. et al.
3 5	9 9 2 1 4	08/10/1971	Altmeppen
3 6	2 2 8 9 0	11/23/1971	Fujimoto et al.
3 6	8 3 3 7 6	08/08/1972	Provenzano
3 8	1 8 4 9 0	06/18/1974	Lashby
3 9	6 7 2 7 6	06/29/1976	Goubaux
3 9	6 50 7 3 0	07/13/1976	Fischer
4 0	2 4 5 4 2	05/13/1977	Bauer et al.
4 1	3 1 8 9 3	12/26/1978	Manson et al.
4 4	7 1 3 5 8	09/11/1984	Glauser
4 4	7 1 4 9 3	09/11/1984	Scheiber
4 5	0 4 8 3 4	03/12/1985	Gierzy et al.
4 5	4 3 5 8 1	09/24/1985	Nemet
4 5	7 1 5 9 5	02/18/1986	Phillips et al.
4 5	8 4 7 0 9	04/22/1986	Kosciol et al.
4 5	9 0 6 1 4	05/20/1986	Erst
4 6	2 3 8 9 4	11/18/1986	Lee et al.
4 6	7 3 9 4 8	06/16/1987	Kao
4 7	3 0 1 9 5	03/06/1988	Phillips et al.
4 8	3 9 6 6 0	06/15/1989	Hedengren
4 8	4 3 4 6 8	06/27/1989	Drewey
4 8	4 7 6 2 9	07/11/1989	Shimazaki
4 8	4 9 7 6 6	07/18/1989	Isaba et al.
4 8	5 7 9 3 9	08/15/1989	Shimazaki
4 8	9 0 1 1 4	12/26/1989	Egashira
4 8	9 4 6 6 3	01/16/1990	Urish et al.
4 9	0 7 0 1 1	03/06/1990	Kao
4 9	1 2 4 8 1	03/27/1990	Mace et al.
4 9	7 5 7 1 1	12/04/1990	Lee
5 0	3 0 9 6 3	07/09/1991	Tadema
5 1	3 8 3 2 8	08/11/1992	Zilber et al.
5 1	6 8 4 7 2	12/01/1992	Lockwood
5 1	7 2 0 8 4	12/15/1993	Fiedorczko et al.
5 2	0 0 7 5 6	04/06/1993	Feller
5 2	1 4 4 3 4	05/25/1993	Hsu
5 2	1 8 3 7 0	06/08/1993	Blaese

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FORM PTO-2449 (Modified) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		Atty Docket No.: 151454000018	
INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Use several sheets if necessary)		Serial No.: 10422,513	
(37 CFR 1.98(b))		Applicant(s): Puente Baliarda et al.	
		Filing Date: April 13, 2004	
		Group: Not Yet Assigned	
U.S. PATENT DOCUMENTS			
Exam. Init.	Patent Number	Issue Date	Patentee
2002/	0 0 0 0 9 4 0	01/03/2002	Moren et al.
2002/	0 0 0 0 9 4 2	01/03/2002	Duane
2002/	0 0 3 6 5 9 4	03/26/2002	Gyenes
2002/	0 1 0 5 4 6 8	08/08/2002	Tresser et al.
2002/	0 1 0 9 6 3 3	08/15/2002	Ow et al.
2002/	0 1 2 6 0 5 4	09/12/2002	Fuente et al.
2002/	0 1 2 6 0 3 3	09/12/2002	Lindemann et al.
2002/	0 1 7 3 8 6 6	11/28/2002	Gunn
3 5	2 1 2 8 4	07/21/1970	Shelton, Jr. et al.
3 5	9 9 2 1 4	08/10/1971	Altmeppen
3 6	2 2 8 9 0	11/23/1971	Fujimoto et al.
3 6	8 3 3 7 6	08/08/1972	Provenzano
3 8	1 8 4 9 0	06/18/1974	Lashby
3 9	6 7 2 7 6	06/29/1976	Goubaux
3 9	6 50 7 3 0	07/13/1976	Fischer
4 0	2 4 5 4 2	05/13/1977	Bauer et al.
4 1	3 1 8 9 3	12/26/1978	Manson et al.
4 1	4 1 0 1 6	02/20/1979	Nelson
4 4	7 1 3 5 8	09/11/1984	Glauser
4 4	7 1 4 9 3	09/11/1984	Scheiber
4 5	0 4 8 3 4	03/12/1985	Gierzy et al.
4 5	4 3 5 8 1	09/24/1985	Nemet
4 5	7 1 5 9 5	02/18/1986	Phillips et al.
4 5	8 4 7 0 9	04/22/1986	Kosciol et al.
4 5	9 0 6 1 4	05/20/1986	Erst
4 6	2 3 8 9 4	11/18/1986	Lee et al.
4 6	7 3 9 4 8	06/16/1987	Kao
4 7	3 0 1 9 5	03/06/1988	Phillips et al.
4 8	3 9 6 6 0	06/15/1989	Hedengren
4 8	4 3 4 6 8	06/27/1989	Drewey
4 8	4 7 6 2 9	07/11/1989	Shimazaki
4 8	4 9 7 6 6	07/18/1989	Isaba et al.
4 8	5 7 9 3 9	08/15/1989	Shimazaki
4 8	9 0 1 1 4	12/26/1989	Egashira
4 8	9 4 6 6 3	01/16/1990	Urish et al.
4 9	0 7 0 1 1	03/06/1990	Kao
4 9	1 2 4 8 1	03/27/1990	Mace et al.
4 9	7 5 7 1 1	12/04/1990	Lee
5 0	3 0 9 6 3	07/09/1991	Tadema
5 1	3 8 3 2 8	08/11/1992	Zilber et al.
5 1	6 8 4 7 2	12/01/1992	Lockwood
5 1	7 2 0 8 4	12/15/1993	Fiedorczko et al.
5 2	0 0 7 5 6	04/06/1993	Feller
5 2	1 4 4 3 4	05/25/1993	Hsu
5 2	1 8 3 7 0	06/08/1993	Blaese

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j. More references are included in the August 31, 2004 IDS for the application leading to the '762 Patent than the February 10, 2004 IDS for the application leading to the '675 Patent. Upon information and belief, the additional references cited in the August 31, 2004 IDS for the application leading to the '762 correspond to references previously cited in the application leading to the '675 Patent, for example, before the February 10, 2004 IDS. Thus, upon information and belief, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda attempted to cite the same references to the USPTO in the application leading to the '762 Patent that were previously cited in the application leading to the '675 Patent.

k. As indicated above, on October 4, 2004, in the prosecution of the application leading to the '675 Patent, Examiner Wimer of the USPTO issued an office action (addressed to Joseph Sauer of Jones Day), which was received by one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda. Examiner Wimer's rejection informed one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda that the '114 Patent disclosed the "space-filling curve" feature of the claims as follows, in part:

3. Claims 1,3,4,6 and 11-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Shoemaker (5363114).

Regarding Claims 1,3,4,6,11-13, Shoemaker shows an antenna system integrated with a physical component of a motor vehicle comprising a radio antenna 20 having a radiating arm defining a space-filling curve "R" of right-angled bends and straight lines and having a feed point (at connector 41) and coupled to a radio, and formed on a dielectric substrate "C"; a grounding point 63 (Fig. 12), a loading point 50,58 (Fig.11), all arranged as claimed.

l. At the same time, on October 4, 2004, the claim feature of the “space-filling curve” was also present in the claims of the co-pending application leading to the ‘762 Patent Application. For example, claim 10 (as it existed on October 4, 2004) specified that “the shape of at least one loading strip is a space-filling curve.” Accordingly, the ‘114 Patent and the rejections based thereupon were material to the application leading to the ‘762 Patent. Furthermore, the ‘114 Patent and/or rejections based thereupon were not cumulative to references and information already of record in the application leading to the ‘762 Patent. Notwithstanding this, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda withheld the ‘114 Patent and Examiner’s Wimer’s rejection from the USPTO in the prosecution of the application leading to the ‘762 Patent.

m. In addition to withholding the ‘114 Patent and rejections based thereupon in the prosecution of the application leading to the ‘762 Patent, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda additionally withheld other references cited by Examiner Wimer in rejecting claims of the application leading to the ‘635 Patent. In particular, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda withheld U.S. Patent Nos. 6,011,518 and 6,087,990 — both of which were cited by Examiner Wimer in an obviousness rejection of October 4, 2004 for claims of the application leading to the ‘675 Patent.

n. Despite previously citing substantially the same references in both the application leading to the ‘675 Patent and the application leading to the ‘762 Patent, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda thereafter withheld rejections and references received in the application leading to the ‘675 Patent from the prosecution of the application leading to the ‘762 Patent.

o. One or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda recognized their duty to disclose prior art cited in the application leading to the '675 Patent in other Fractus patent applications. On December 13, 2004, almost two months after receiving the rejection in the application leading to the '675 Patent, David Maiorana of Jones Day cited the '114 Patent, the '518 Patent, and the '990 Patent in U.S. Patent Application No. 10/963,080 entitled "Multilevel Antenna." Significantly, U.S. Patent Application No. 10/963,080 entitled "Multilevel Antenna" did not include the "space-filling curve" claim feature whereas the application leading to the '762 Patent did include such a claim feature. However, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda did not cite the '114 Patent, the '518 Patent, and the '990 Patent in the application leading to the '762 Patent.

p. One or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda recognized the materiality of the '114 Patent to claims with "space-filling curve" feature. Specifically, on January 6, 2005, in response to Examiner Wimer's rejection in the application leading to the '675 Patent, Joseph Sauer of Jones Day amended the claims in attempts to distinguish them from the '114 Patent, specifying that the "space-filling curve" included at least "two-hundred segments."

q. Approximately two months after amending the claims in the application leading to the '675 Patent, on March 29, 2005, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda amended claims in the application leading to the '762 Patent. Specifically, Joseph Sauer of Jones Day filed a preliminary amendment. In this preliminary amendment, Joseph Sauer indicated that the claims were amended, among other things, "for clarity and/or to correct typographical errors." In this

amendment, the “space-filling curve” features (previously present in the claims) were maintained.

r. Shortly after the March 29, 2005 preliminary amendment, on April 7, 2005, in the prosecution of the application leading to the ‘675 Patent, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda was reminded, again, of the highly material nature of the ‘114 Patent. Specifically, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda received another rejection from Examiner Wimer at the USPTO. Examiner Wimer’s rejection indicated that the ‘114 Patent disclosed the “space-filling curve” claim feature — even after the claims were further amended to require that the “space-filling curve” to include at least “two-hundred segments.”

s. The prosecution of the application leading to the ‘675 Patent continued as indicated below with involvement by one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda. Each of the below-identified prosecution events presented a unique opportunity for one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda to disclose the ‘114 Patent and rejections based thereupon in the prosecution of the application leading to the ‘762 Patent:

- In a May 31, 2005 Response to Office Action, Joseph Sauer of Jones Day argued that the “space-filing curve includes at least two hundred segments” claim feature was novel over the ‘114 Patent, indicating that this claim limitation “describe[s] the degree of miniaturization of the radio antenna, which is made possible by the use of the claimed space-filling curve.” The “space-filling curve” claim features were still present in the application leading to the ‘762 Patent.
- In a June 23, 2005 Advisory Action addressed to Joseph Sauer of Jones Day, Examiner Wimer of the USPTO indicated that the “space-filling curve” claims were still not allowable. The “space-filling curve” claim features were still present in the application leading to the ‘762 Patent.
- In an August 8, 2005 RCE, Joseph Sauer of Jones Day further amended the already amended claims. First, he changed the term “space-filling curve” to “space-filling geometry.” Then in addition to requiring that the “space-filling geometry” include at

least “two hundred segments,” he further amended the claims to require that the “entire space-filling geometry contributes to the radiation characteristics of the radio antenna.” The “space-filling curve” claim features were still present in the application leading to the ‘762 Patent.

- In an August 24, 2005 non-final rejection addressed to Joseph Sauer of Jones Day, Examiner Wimer continued to maintain his rejection of the “space-filling curve” claims — even as further amended. Among other things, he found that the ‘114 Patent met the “space-filling geometry” feature. The “space-filling curve” claim features were still present in the application leading to the ‘762 Patent.

t. Despite having these four additional opportunities to disclose highly material information to the USPTO, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda chose not to act.

u. On August 26, 2005, Joseph Sauer of Jones Day filed a request for withdrawal of “all the attorneys/agents of record” from the application leading to the ‘762 Patent. Then, on September 23, 2005, a power of attorney signed by Carles Puente Baliarda appointed practitioners at Customer No. 23932 (which, upon information and belief, was the law firm of Jenkins and Gilchrist) as Fractus’ attorneys. The September 23, 2005 power of attorney indicated that as of that date, an examiner had not yet been assigned. The duty for one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda to disclose the ‘114 Patent and the rejections based thereupon in the applications leading to the ‘762 Patent never extinguished with the power of attorney being provided to a new firm.

Application Leading to the ‘556 Patent

v. The application leading to the ‘556 Patent was filed on May 9, 2005 by Joseph Sauer of Jones Day. One or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda recognized the relatedness of the ‘556 Patent to the Space Filling Miniature Patent Family (which included the ‘850 Patent, the ‘822 Patent, and the ‘635 Patent Application). Specifically, the application leading to the ‘850 Patent

— U.S. Patent Application No. 11/110,052 — was specifically incorporated by reference in the specification of the ‘556 Patent as follows:

The use of shape-filling curves to form antenna structures is described in greater detail in the co-owned U.S. application Ser. No. 11/110,052, entitled Space-Filling Miniature Antennas, which is hereby incorporated into the present application by reference.

w. At the time of filing the application leading to the ‘556 Patent on May 9, 2005, as indicated in previous subparagraphs, several prosecution events had already occurred in the prosecution of the application leading to the ‘675 Patent:

- In an October 4, 2004 Rejection, Examiner Wimer indicated that the ‘114 Patent disclosed the “space-filling curve” feature of the claims.
- In a January 6, 2005 Response, Joseph Sauer of Jones Day amended the “space-filling curve” claims in attempts to distinguish them from the ‘114 Patent. Specifically, Joseph Sauer of Jones Day amended the claims to require the “space-filling curve” to include at least “two-hundred segments.”
- In an April 7, 2005 Final Rejection, Examiner Wimer again indicated that the ‘114 Patent disclosed the “space-filling curve” claims — even when the claims are amended to specify that “space-filling curve” has over two hundred segments.

x. The application leading to the ‘556 Patent included the same “space-filling curve” claim feature being prosecuted in the application leading to the ‘675 Patent. For example, claim 6 of the originally filed ‘556 Patent recited that “the first radiating arm forms a space-filling curve,” and claim 1 of the application leading to the ‘675 Patent recited that “at least a portion of the radiating arm defining a space-filling curve.” Accordingly, the references and rejections received in the prosecution of the application leading to the ‘675 Patent were material to the prosecution of the application leading to the ‘556 Patent.

y. After the filing of the application leading to the ‘556 Patent, the prosecution of the application leading to the ‘675 Patent continued as indicated below with involvement by one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or

Carles Puente Baliarda. Each of these prosecution events presented a unique opportunity for one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda to disclose the '114 Patent and rejections based thereupon in the prosecution of the application leading to the '556 Patent:

- In a May 31, 2005 Response to Office Action, Joseph Sauer of Jones Day argued that the “space-filing curve” includes at least “two hundred segments” feature was novel over the '114 Patent, indicating that this claim limitation “describe[s] the degree of miniaturization of the radio antenna, which is made possible by the use of the claimed space-filling curve.” The “space-filling curve” claim features were still present in the application leading to the '556 Patent.
- In a June 23, 2005 Advisory Action addressed to Joseph Sauer of Jones Day, Examiner Wimer of the USPTO indicated that the claims were not allowable. The “space-filling curve” claim features were still present in the application leading to the '556 Patent.
- In an August 8, 2005 RCE, Joseph Sauer of Jones Day further amended the already amended claims. First, he changed the term “space-filling curve” to “space-filling geometry.” Then in addition to requiring that the “space-filling geometry” include at least “two hundred segments,” he amended the claims to require that the “entire space-filling geometry contributes to the radiation characteristics of the radio antenna.” The “space-filling curve” claim features were still present in the application for the '556 Patent.
- In an August 24, 2005 non-final rejection addressed to Joseph Sauer of Jones Day, Examiner Wimer continued to maintain his rejection of the “space-filling curve” claims — even as further amended. Among other things, he found that the '114 Patent met the “space-filling geometry” feature. The “space-filling curve” claim features were still present in the application leading to the '556 Patent.

z. On September 13, 2005, Joseph Sauer of Jones Day filed a request for withdrawal of “all the attorneys/agents of record” from the application leading to the '556 Patent. Then, on October 11, 2005, a power of attorney signed by Carles Puente Baliarda appointed practitioners at Customer No. 23932 (which, upon information and belief, was the law firm of Jenkins and Gilchrist) as Fractus’ attorneys. The power of attorney filed on October 11, 2005 indicated as of that date that no Examiner had yet been assigned. The duty for one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda to

cite the '114 Patent and the rejections based thereupon in the applications leading to the '556 Patent never extinguished with the power of attorney being provided to a new firm.

aa. As of September 13, 2005, the filing date for the request for withdrawal of attorney, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda had provided no references to the USPTO in an information disclosure statement.

bb. Ultimately, the '114 Patent and the rejections based thereupon were never disclosed in the applications leading to the '556 Patent and the '762 Patent. Because the '114 Patent and the rejections based thereupon were never disclosed in the applications leading to the '556 Patent and the '762 Patent, upon information and belief, one of two scenarios occurred. One or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda did not provide the '114 Patent and the rejections based thereupon to the new attorneys from the other law firm, causing them to be withheld from the prosecution of the applications leading to the '556 Patent and the '762 Patent. Or, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda provided the '114 Patent and rejections based thereupon to the new attorneys from the other law firm and the new attorneys from the other law firm chose not to submit them to the USPTO. In either scenario, those having a duty to disclose the '114 Patent and the rejections based thereupon failed to disclose or have them disclosed to the USPTO in the prosecution of the applications leading '556 Patent and the '762 Patent.

cc. The '114 Patent and the rejections based thereupon (received in the prosecution of the application leading to the '675 Patent) were highly material to claims of the applications leading to the '762 Patent and the '556 Patent, for at least the following reasons:

- There was a common claim feature in each of the patent applications: Each of the ‘675 Patent, the ‘635 Patent Application, the ‘850 Patent, the ‘822, the ‘762 Patent, and the ‘556 Patent includes or included a common “space-filling curve” claim feature.
- Subject matter from one application was incorporated by reference and/or referenced by the specification of another: The specification of the application leading to the ‘762 Patent recognized the “space-filling curve” feature of the Space Filling Miniature Patent Family as being part of the geometry “according to the present invention [of the application leading to the ‘762 Patent].” In the specification of the application leading to the ‘556 Patent, the application leading to the ‘850 Patent — U.S. Patent Application No. 11/110,052 — was specifically incorporated by reference.
- A U.S. Examiner found that the ‘114 Patent disclosed the common claim feature: On October 4, 2004, in the application leading to the ‘675 Patent, Examiner Wimer indicated that the ‘114 Patent disclosed the “space-filling curve” claim feature. At that time, the same “space-filling curve” claim feature was present in the co-pending application leading to the ‘762 Patent.
- Applicants presented an amendment to the common claim feature to the U.S. Examiner in attempts to overcome the ‘114 Patent: On January 6, 2005, Joseph Sauer of Jones Day in the application leading to the ‘675 Patent amended the “space-filling” curve claims in an attempt to distinguish them from the ‘114 Patent. Specifically, Joseph Sauer amended claims to require the “space-filling curve” to include at least “two-hundred segments.” At that time, the same “space-filling curve” claim feature was present in the co-pending application leading to the ‘762 Patent.
- The U.S. Examiner found that the ‘114 Patent disclosed the common claim feature — even as further amended: On April 7, 2005, Examiner Wimer again indicated that the above-identified common “space-filling curve” claim feature is disclosed by a single reference, the ‘114 Patent. In particular, in the application leading to the ‘675 Patent, Examiner Wimer maintained his rejection — even after the claims were further amended to require the “space-filling curve” to include at least “two-hundred segments.” At that time, the same “space-filling curve” claim feature was still present in the co-pending application leading to the ‘762 Patent.
- The ‘556 Patent is filed with the common claim feature: On May 29, 2005, Joseph Sauer of Jones Day filed the application leading to the ‘556 Patent, including claims with the “space-filling curve” claim feature.
- Applicants presented further arguments to the U.S. Examiner as to why the amended common claim feature is purportedly novel over the ‘114 Patent: On May 31, 2005 in a Response to Office Action for the application leading to the ‘675 Patent, Joseph Sauer of Jones Day argued that the “space-filling curve includes at least two hundred segments” claim feature was novel over the ‘114 Patent, indicating that this claim feature “describe[s] the degree of miniaturization of the radio antenna, which is made possible by the use of the claimed space-filling curve.” At that time, the same “space-filling curve”

claim feature was still present in the co-pending applications leading to the '762 Patent and the '556 Patent.

- The U.S. Examiner still finds that the '114 Patent disclosed the common claim feature — even as further amended: On June 23, 2005, in the application leading to the '675 Patent, the PTO issued an Advisory Action addressed to Joseph Sauer of Jones Day. Examiner Wimer of the USPTO indicated that the claims with the “space-filling curve” claim features are still not allowable. At that time, the same “space-filling curve” claim feature was still present in co-pending applications leading to the '762 Patent and '556 Patent.
- Applicants presented further amendments to the already amended common claim feature to the U.S. Examiner in attempts to overcome the '114 Patent: On August 8, 2005, in the application leading to the '675 Patent, Joseph Sauer of Jones Day further amended the already amended claims. First, he changed the term “space-filling curve” to “space-filling geometry.” Then in addition to requiring the “space-filling geometry to include at least “two hundred segments,” he amended the claims to further require that the “entire space-filling geometry contributes to the radiation characteristics of the radio antenna.” At that time, the same “space-filling curve” claim feature was still present in the co-pending applications leading to the '762 Patent and the '556 Patent.
- The U.S. Examiner finds that the twice amended claims are not novel over the '114 Patent: On August 24, 2005, Examiner Wimer again rejected the claims of the application leading to the '675 Patent. In this rejection, Examiner Wimer found that the '114 Patent met the modified “space-filling geometry” geometry feature. At that time, the “space-filling curve” feature is still present in the co-pending applications leading to the '762 Patent and the '556 Patent.

dd. The intent to deceive the USPTO by one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carles Puente Baliarda (the “Puente Group Having a Duty of Candor”) is also apparent:

- There was a common claim feature in each of the patent applications: Each of the '675 Patent, the '635 Patent Application, the '850 Patent, the '822, the '762 Patent, and the '556 Patent includes or included a common “space-filling curve” claim feature.
- One or more of the Puente Group Having a Duty of Candor established a practice of cross-citing references among the patent applications and then intentionally stopped: One or more of the Puente Group Having a Duty of Candor recognized that the application leading to the '762 Patent and the '635 Patent Application are related by citing the same references in both applications. This established and repeated practice of citing the same references in both cases ceased after the '114 Patent and other prior art references were used to reject claims in the '675 Patent.
- One or more of the Puente Group Having a Duty of Candor was put on specific notice of the materiality of the '114 Patent when a U.S. Examiner found that the '114 Patent

disclosed the common claim feature: On October 4, 2004, in the application leading to ‘675 Patent, Examiner Wimer’s rejection indicated that the above-identified common claim feature (“space-filling curve” feature) was disclosed by a single reference, the ‘114 Patent.

- One or more of the Puente Group Having a Duty of Candor recognized their duty of disclosure by citing the ‘114 Patent in a less relevant application; however, they did not cite the ‘114 Patent in applications in which it was highly relevant: On December 13, 2004, the Puente Group Having a Duty of Candor cited the ‘114 Patent, the ‘518 Patent, and the ‘990 Patent in U.S. Patent Application No. 10/963,080 entitled “Multilevel Antenna,” which did not include the common claim feature. However, they did not cite the ‘114 Patent, the ‘518 Patent, and the ‘990 Patent in the application leading to the ‘762 Patent, which did include the common claim feature.
- One or more of the Puente Group Having a Duty of Candor was presented with at least eight distinct opportunities to disclose the ‘114 Patent in the applications leading to the ‘762 Patent, but intentionally chose not to act on each of these opportunities: (1) an October 4, 2004 rejection by Examiner Wimer in the application leading to the ‘675 Patent, which indicated that the ‘114 Patent disclosed the common claim feature; (2) a January 6, 2005 amendment to the common claim features presented to Examiner Wimer in the application leading to the ‘675 Patent, attempting to overcome the ‘114 Patent; (3) a March 29, 2005 preliminary amendment in the application leading to the ‘762 Patent; (4) an April 7, 2005 rejection by Examiner Wimer in the application leading to the ‘675 Patent, indicating that the amendment to the common claim feature still did not overcome the ‘114 Patent; (5) a May 31, 2005 argument presented to Examiner Wimer in the application leading to the ‘675 Patent, alleging that the amended common claim feature was novel; (6) an April 7, 2005 communication from Examiner Wimer in the application leading to the ‘675 Patent, indicating that the amendment to the common claim feature still did not overcome the ‘114 Patent; (7) an August 8, 2005 second amendment to the common claim feature presented to Examiner Wimer in the application leading to the ‘675 Patent, attempting again to overcome the ‘114 Patent; and (8) an August 24, 2005 rejection from Examiner Wimer in the application leading to the ‘675 Patent, indicating that the further amendment to the common claim feature still did not overcome the ‘114 Patent.
- One or more of the Puente Group Having a Duty of Candor was presented with numerous distinct opportunities to disclose the ‘114 Patent in the applications leading to the ‘556 Patent, but intentionally chose not to act on each of these opportunities: (1) on May 9, 2005 when the application leading to the ‘556 Patent was filed, after several of the above-referenced events in the application leading to the ‘762 Patent had already occurred; (2) a May 31, 2005 argument presented to Examiner Wimer in the application leading to the ‘675 Patent, alleging that the amended common claim feature was novel; (3) an August 8, 2005 second amendment to the common claim features presented to Examiner Wimer in the application leading to the ‘675 Patent, attempting again to overcome the ‘114 Patent; and (4) an August 24, 2005 rejection from Examiner Wimer in the application leading to the ‘675 Patent, indicating that the further amendment to the common claim feature still did not overcome the ‘114 Patent.

ee. The highly material ‘114 Patent and the rejections based thereupon were knowingly withheld from the prosecution of the applications leading to the ‘762 Patent and the ‘556 Patent, one or more of Joseph Sauer of Jones Day, David Maiorana of Jones Day, and/or Carlos Puente Baliarda intentionally deceived the USPTO. As a result, the ‘556 Patent and the ‘762 Patent are unenforceable due to inequitable conduct.

Those Having a Duty of Candor and Good Faith in Dealing with the USPTO Withheld Highly Material Information, Including Japanese Patent JP 10-303637, From the USPTO In Connection With Prosecution of the ‘762 Patent

174. The ‘762 Patent is further unenforceable because Fractus and/or its patent attorneys and/or others substantively involved in the prosecution before the USPTO withheld highly material information from the USPTO with an intent to deceive the USPTO as follows:

a. Fractus Chinese Patent Application No. CN2001823716 (the “‘716 Chinese Application”), which issued as Chinese Patent CN100382385 (the “Chinese ‘385 Patent”), was a foreign counterpart to the application that led to issuance of the ‘762 Patent, and claims priority to the same PCT application as does the ‘762 Patent: PCT/EP01/11914.

b. One or more of Fractus’ U.S. and/or foreign patent attorneys were substantively involved in the prosecution of the ‘716 Chinese Application. For example, one or more attorneys from China Council for the Promotion of International Trade (CCPIT) Patent and Trademark Law Office was substantively involved on behalf of Fractus in the prosecution of the ‘716 Chinese Application.

c. One or both of the inventors of the ‘716 Chinese Application, Carles Puente Baliarda and Jordi Soler Castany, was substantively involved with and/or assisted in prosecution of the ‘716 Chinese Application.

d. One or more of Ross Robinson, Stanley Moore, Shoaib Mithani, and Michael Maddox, of Winstead PC (and/or Jenkins & Gilchrist), and David Maiorana and

Joseph Sauer of Jones Day, were substantively involved in the prosecution of the application leading to the '762 Patent (i.e., Application Serial No. 10/822,933), and accordingly, each had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose material information to the USPTO. The application leading to the '762 Patent was examined by Examiner Wimer.

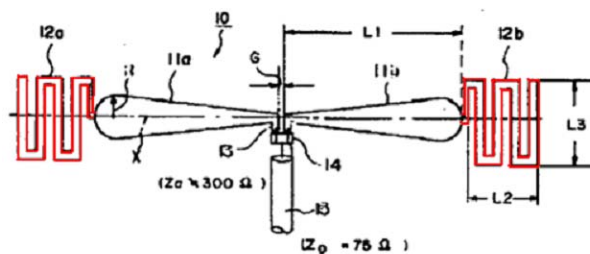
e. One or both of the inventors of the '762 Patent, Carles Puente Baliarda and Jordi Soler Castany, was substantively involved with and/or assisted in prosecution of the application leading to '762 Patent. Accordingly, each had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose material information to the USPTO. That information would include, for example, material information disclosed in the prosecution of the '716 Chinese Application.

f. On information and belief, one or more Chinese patent attorneys representing Fractus consulted with and/or received instructions from and/or shared prosecution strategies with one or more of Ross Robinson, Stanley Moore, Shoaib Mithani, Michael Maddox, David Maiorana, Joseph Sauer, Carles Puente Baliarda, Jordi Soler Castany, and other others at Fractus.

g. In the '716 Chinese Application, the Chinese patent examiner issued an office action on or around February 16, 2007 rejecting claims in view of Japanese Patent JP 10-303637 ("the '637 JP Reference"). Accordingly, at least as early as this time, one or more of Fractus' U.S. and/or foreign patent attorneys substantively involved in the prosecution of the '716 Chinese Application, and/or Carles Puente Baliarda and Jordi Soler Castany, thereby became aware of the '637 JP Reference.

h. The '637 JP Reference, which was published on November 13, 1998, is prior art to the '762 Patent, which claims as its earliest priority date the October 16, 2001 filing date of PCT/EP01/11914. The '637 JP Reference is material to the patentability of the claims of the '762 Patent because it anticipates or renders obvious claims, including at least Claim 12.

i. As an example of the preceding subparagraph, the graphic below indicates how the '637 JP Reference anticipates or renders obvious independent Claim 12 of the '762 Patent (Figure from the '637 JP Reference on the left and Claim 12 of the '762 Patent on the right):



12. A loaded antenna comprising:
a radiating element comprising a first part and a second part;
the first part comprising at least one conducting surface; and
the second part comprising a loading structure, the loading structure comprising at least one conducting strip connected at at least one point on an edge of the at least one conducting surface, the maximal width of the at least one conducting strip being less than a quarter of the longest straight edge of the conducting surface;

wherein the at least one conducting strip is shaped as a space-filling curve comprising at least ten segments connected so that no pair of adjacent segments defines a longer straight segment and, if the curve is periodic along a fixed straight direction of space, the period is defined by a non-periodic curve comprising at least ten connected segments and no pair of the adjacent and connected segments defines a straight longer segment; and

wherein the space-filling curve intersects with itself at most only at its initial and final point.

j. On information and belief, because inventors Carles Puente Baliarda and Jordi Soler Castany were named inventors on both applications and substantively involved in both, they were aware of the '637 JP Reference and failed to disclose that reference during prosecution of the application leading to the '762 Patent. Further on information and belief, the attorneys substantively involved on behalf of Fractus in prosecuting the '716 Chinese Application, and inventors Carles Puente Baliarda and Jordi Soler Castany, discussed and shared

prosecution strategies amongst one another, and with Fractus' U.S. Patent attorneys handling the prosecution of the application that led to the '762 Patent (including one or more Ross Robinson, Stanley Moore, Shoaib Mithani and Michael Maddox), either directly or through communications with the named inventors or others at Fractus.

k. However, despite becoming aware of the '637 JP Reference and the rejections by the Chinese patent examiner of similar claims to those then pending in the application leading to the '762 Patent, one or more of Ross Robinson, Stanley Moore, Shoaib Mithani, Michael Maddox, Carles Puente Baliarda and Jordi Soler Castany failed to take this first opportunity to disclose the reference to Examiner Wimer in the prosecution of the application leading to the '762 Patent.

l. Thereafter, on or around August 21, 2007, by and through its Chinese patent counsel, Fractus responded to the office action in the '716 Chinese Application, and argued the patentability of the claims over the '637 JP Reference. On information and belief, because the claims were amended to match the limitations of claims pending in the application leading to the '762 Patent in order to overcome the '637 JP Reference, Fractus' Chinese patent counsel was in communication with/receiving instructions from Fractus' U.S. patent counsel and/or others at Fractus, including one or more of Ross Robinson, Stanley Moore, Shoaib Mithani, Michael Maddox, Carles Puente Baliarda and Jordi Soler Castany, and one or more of these persons was therefore aware of the '637 JP Reference and the Chinese patent examiner's rejections. However, despite this prompting reminder and these internal communications/coordination of strategy, one or more of Ross Robinson, Stanley Moore, Shoaib Mithani, Michael Maddox, Carles Puente Baliarda and Jordi Soler Castany failed to take this

second opportunity to disclose the reference to Examiner Wimer in the prosecution of the application leading to the ‘762 Patent.

m. Then on or around December 10, 2007, the Chinese patent examiner issued another office action in the ‘716 Chinese Application, again rejecting claims in view of the ‘637 JP Reference. However, despite this next prompting reminder, one or more of Ross Robinson, Stanley Moore, Shoaib Mithani, Michael Maddox, Carles Puente Baliarda and Jordi Soler Castany failed to take this third opportunity to disclose the reference to Examiner Wimer in the prosecution of the application leading to the ‘762 Patent.

n. Moreover, one or more of Ross Robinson, Stanley Moore, Shoaib Mithani and/or Michael Maddox was also substantively involved in the prosecution of Fractus Application Serial No. 11/824,823 (which issued as U.S. Patent 7,541,997 (the “‘997 Patent”)), which is a continuation of the ‘762 Patent. One or more of these attorneys, who were also substantively involved in the prosecution of the application leading to the ‘762 Patent, became aware of the ‘637 JP Reference. Indeed, recognizing the materiality of the reference to the subject matter of the ‘997 Patent (and, by virtue of their relationship, the ‘762 Patent), Fractus by and through one or more of Ross Robinson, Stanley Moore, Shoaib Mithani and/or Michael Maddox disclosed the ‘637 JP Reference to the USPTO on June 6, 2008 in the application leading to the ‘997 Patent (although Fractus did not disclose the Chinese patent examiner’s rejections therein).

o. After the time that the Chinese patent examiner first identified the ‘637 JP Reference and issued rejections in view of it (on or around February 16, 2007), one or more of Ross Robinson, Stanley Moore, Shoaib Mithani, and/or Michael Maddox of Winstead

PC (or Jenkins & Gilchrist), were substantively involved in the following actions in the application leading to the '762 Patent

- On February 23, 2007, Shoaib Mithani signed and submitted an amendment and remarks in the application leading to the '762 Patent. However, at that time, Shoaib Mithani did not disclose to Examiner Wimer the '637 JP Reference or the Chinese patent examiner's rejections.
- On June 26, 2007, Shoaib Mithani signed and submitted an issue fee payment in the application leading to the '762 Patent. However, at that time, Shoaib Mithani did not disclose to Examiner Wimer the '637 JP Reference or the Chinese patent examiner's rejections.
- On June 26, 2007, Shoaib Mithani also signed and submitted a claim for priority to PCT/EP01/11914 (the same priority application as for the '716 Chinese Application) in the application leading to the '762 Patent. However, at that time, Shoaib Mithani did not disclose to Examiner Wimer the '637 JP Reference or the Chinese patent examiner's rejections.
- On July 17, 2007, Shoaib Mithani signed and submitted a Petition to Withdraw from Issue and Request for Continued Examination in the application leading to the '762 Patent, in order to disclose additional prior art in an Information Disclosure Statement. However, at that time, Shoaib Mithani did not disclose to Examiner Wimer the '637 JP Reference or the Chinese patent examiner's rejections in that Information Disclosure Statement.
- On November 7, 2007, Stanley Moore signed and submitted an issue fee payment in the application leading to the '762 Patent. However, at that time, Stanley Moore did not disclose to Examiner Wimer the '637 JP Reference or the Chinese patent examiner's rejections in that Information Disclosure Statement.

p. On information and belief, the '637 JP Reference and the rejections of the Chinese patent examiner in view of the '637 JP Reference, which were material to the patentability of the '762 Patent, were withheld from Examiner Wimer during prosecution of the '762 Patent, with intent to deceive, by one or more of Ross Robinson, Stanley Moore, Shoaib Mithani, Michael Maddox, Carles Puente Baliarda, Jordi Soler Castany and/or others having a duty of candor and good faith to the USPTO.

q. On information and belief Examiner Wimer in examining the '762 Patent would have wanted to know about the '637 JP Reference and the Chinese patent

examiner's rejections under the reference. The '637 JP Reference and the Chinese patent examiner's rejection were thus material to the claims of the '762 Patent.

r. Accordingly, for at least these additional reasons, the '762 Patent is unenforceable due to inequitable conduct.

Those Having a Duty of Candor and Good Faith in Dealing with the USPTO Withheld at least United States Patent Nos. 7,015,868; 7,123,208; 7,148,850; and 7,202,822 in the Prosecution of the application leading to United States Patent No. 7,312,762.

175. U.S. Patent No. 7,312,762 (the "'762 Patent'") is unenforceable because Applicants and/or their patent attorneys and/or others substantively involved in prosecution before the USPTO knowingly withheld with an intent to deceive highly material information associated with related Fractus patents as follows:

a. The application leading to the '762 Patent was filed on April 13, 2004 and claims priority to PCT/EP2001/11914 dated October 16, 2001. The '762 Patent issued on December 25, 2007. The '762 Patent is assigned on its face to Fractus, S.A.

b. U.S. Patent No. 7,015,868 (the "'868 Patent'") issued on March 21, 2006, and is assigned on its face to Fractus, S.A. U.S. Patent No. 7,123,208 (the "'208 Patent'") issued on October 17, 2006, and is assigned on its face to Fractus, S.A. U.S. Patent No. 7,148,850 (the "'850 Patent'") issued on December 12, 2006, and is assigned on its face to Fractus, S.A. U.S. Patent No. 7,202,822 (the "'822 Patent'") issued on April 10, 2007, and is assigned on its face to Fractus, S.A.

c. At different points in time, at least Joseph Sauer and David Maiorana of Jones Day, Stanley Moore of Jenkins & Gilchrist (and later Winstead P.C.), Ross Robinson of Jenkins & Gilchrist (and later Winstead P.C.), and Shoaib Mithani of Jenkins & Gilchrist (and later Winstead P.C.), prosecuted the application leading to the '762 Patent. As a

result, Joseph Sauer, David Maiorana, Stanley Moore, Ross Robinson, and Shoaib Mithani each had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose material information to the USPTO in the prosecution of Fractus patent applications, including the application leading to the '762 Patent. Additionally, on information and belief, Joseph Sauer, David Maiorana, Stanley Moore, Ross Robinson, and Shoaib Mithani discussed and shared prosecution strategies amongst one another in the prosecution of multiple Fractus patents and patent applications, including the '868 Patent, the '208 Patent, the '850 Patent, the '822 Patent, and the application leading to the '762 Patent. As a result, each had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose material information to the USPTO in the prosecution of Fractus patent applications, including the application leading to the '762 Patent.

d. One or both of Carles Puente Baliarda and Jordi Soler Castany were listed as inventors on one or more of the following patents: the '762 Patent, the '868 Patent, the '208 Patent, the '850 Patent, and the '822 Patent. Additionally, upon information and belief, one or both of Carles Puente Baliarda and Jordi Soler Castany were substantively involved in the prosecution of the applications leading to the '762 Patent, the '868 Patent, the '208 Patent, the '850 Patent, and the '822 Patent. Accordingly, each of Carles Puente Baliarda and Jordi Soler Castany had a duty of candor and good faith in dealing with the USPTO, which included a duty to disclose material information to the USPTO for each of the '762 Patent, the '868 Patent, the '208 Patent, the '850 Patent, and the '822 Patent.

e. Originally filed Claim 7 of the application leading to the '762 Patent recited, in part, "wherein at least a portion of said conducting surface is a multilevel

structure.” Originally filed Claim 10 of the application leading to the ‘762 Patent recited, in part, “wherein the shape of at least one loading strip is a space-filling curve.”

f. On October 5, 2006, in the prosecution of the application leading to the ‘762 Patent, Examiner Wimer of the USPTO issued an office action (addressed to Jenkins & Gilchrist, PC), which was received by one or more of Stanley Moore, Ross Robinson, and Shoaib Mithani. Examiner Wimer’s rejection informed one or more of Stanley Moore, Ross Robinson and Shoaib Mithani that pending Claims 1-21 and 23-27 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,410,322 (the “322 Patent”).

g. On December 27, 2006, in response to Examiner Wimer’s rejection in the application leading to the ‘762 Patent, Ross Robinson of Jenkins & Gilchrist, P.C. canceled Claims 1-27 and added new Claims 28-48, of which Claims 28, 39, and 48 were the only independent claims. In particular, new Claim 28 (which issued as Claim 1) recited, in part, “wherein at least a portion of the at least one conducting surface is a multilevel structure comprising a plurality of polygons, all of the plurality of polygons having at least four and the same number of sides, a plurality of the plurality of polygons being electromagnetically coupled via capacitive coupling or ohmic contact to define a plurality of contact regions and wherein, for at least 75% of the plurality of electromagnetically coupled polygons, a contact region is less than 50% of the perimeter of an electromagnetically coupled polygon.” New Claim 39 (which issued as Claim 12) recited, in part, “wherein the at least one conducting strip is shaped as a space-filling curve comprising at least ten segments connected so that no pair of adjacent segments defines a longer straight segment.” New Claim 48 (which issued as Claim 21) recited, in part, “wherein at least a portion of the at least one conducting surface is a multilevel structure comprising a plurality of polygons, all of the plurality of polygons having at least four and the

same number of sides, the plurality of polygons being generally identifiable by the free perimeter thereof as a geometrical element and wherein projection of the exposed perimeters of the plurality of polygons defines the least number of polygons necessary to form a generally distinguishable element where polygon perimeters are interconnected, a plurality of the plurality of polygons being electromagnetically coupled via capacitive coupling or ohmic contact to define a plurality of contact regions and wherein, for at least 75% of the plurality of electromagnetically coupled polygons, a contact region is less than 50% of the perimeter of an electromagnetically coupled polygon.”

h. At least Claim 1 of the ‘868 Patent recites claim elements that are identical or strikingly similar to those of at least new Claims 28 and 48 in the application leading to the ‘762 Patent, as follows:

1. A multi-band antenna including at least one multilevel structure wherein the multilevel structure comprises a set of polygonal or polyhedral elements heaving the same number of sides or faces, wherein each of said elements is electromagnetically coupled to at least one other of said elements either directly through at least one point of contact or through a small separation providing coupling, wherein for at least 75% of said polygonal or polyhedral elements, the region or area of contact between said polygonal or polyhedral elements is less than 50% of the perimeter or area of said elements, and wherein not all the polygonal or polyhedral elements have the same size and the perimeter of the multilevel structure has a different number of sides than the polygons that compose the multilevel structure.

i. At least Claim 1 of the ‘208 Patent recites claim elements that are identical or strikingly similar to those of at least New Claims 28 and 48 in the application leading to the ‘762 Patent, as follows:

1. A multi-band antenna including at least one multilevel structure wherein the multilevel structure includes at least one antenna region comprising a set of polygonal or polyhedral elements having the same number of sides or faces, wherein each of said elements in said antenna region is electromagnetically coupled to at least one other of said elements in said region either directly through at least one point of contact or through a small separation providing said coupling, wherein for at least 75% of said polygonal or polyhedral elements, the region or area of contact between said polygonal or polyhedral elements is less than 50% of the perimeter or area of said elements, wherein not all of the polygonal or polyhedral elements have the same size, and wherein the perimeter of the multilevel structure has a different number of sides than the polygons that compose said antenna region, and further wherein a plurality of polygons of said antenna region are generally identifiable as a geometrical element defined by the free perimeter thereof and the projection of ones of the longest exposed perimeters thereof to define the least number of polygons within said region necessary to form said generally distinguishable elements where said polygon perimeters are interconnected.

j. At least Claim 35 of the '850 Patent recites claim elements that are identical or strikingly similar to those of at least New Claim 39 in the application leading to the '762 Patent, as follows:

35. An antenna in which at least one portion of the antenna is shaped as a space-filling curve (hereafter SFC), the SFC including at least ten connected segments, wherein said segments are each smaller than a tenth of an operating free-space wavelength of the antenna and the segments are spatially arranged such that no two adjacent and connected segments form another longer straight segment, wherein none of said segments intersect with another segment other than to form a closed loop, wherein each pair of adjacent segments forms a corner, and wherein any portion of the curve that is periodic along a fixed straight direction of space is defined by a non-periodic curve that includes at least ten connected segments in which no two adjacent and connected segments define a straight longer segment.

k. At least Claim 41 of the '822 Patent recites claim elements that are identical or strikingly similar to those of at least New Claim 39 in the application leading to the '762 Patent, as follows:

41. An apparatus comprising:
an antenna in which at least one portion of the antenna is shaped as a space-filling curve (SFC),
wherein said SFC comprises a multiplicity of connected segments, wherein the segments are spatially arranged such that no two adjacent and connected segments form another longer straight segment,
such that the SFC has physical length longer than that of any straight line that can be fitted in the same area in which the segments of the SFC are arranged, and
such that the resulting antenna is electrically small as its dimensions are less than $\frac{1}{2}\lambda$ of a free-space operating wavelength of the antenna.

l. Due to the identical or striking similarity in wording among the new Claims 28, 39, and 48 in the application leading to the '762 Patent and the wording of at least some of the claims of the '868 Patent, the '208 Patent, the '850 Patent, and the '822 Patent, as set forth above in subparagraphs (g)-(k), upon information and belief, Ross Robinson was aware of and copied the language of new Claims 28, 39, and 48 from at least the claims of the '868 Patent, the '208 Patent, the '850 Patent, and the '822 Patent.

m. In the December 27, 2006 response, Ross Robinson argued that the '322 Patent (Sonoda) cited in the rejection by Examiner Wimer specifically failed to teach or suggest the elements of New Claims 28, 39, and 48 recited above in subparagraph (g), as follows:

Applicant respectfully submits that Sonoda fails to teach or suggest at least one of the distinguishing features of new independent claim 28, namely, at least one conducting surface having at least a portion that is a multi-level structure comprising a plurality of polygons, all of the plurality of polygons having at least four and the same number of sides, a plurality of the plurality of polygons being electromagnetically coupled via capacitive coupling or ohmic contact to define a plurality of contact regions and wherein, for at least 75% of the plurality of electromagnetically coupled polygons, a contact region is less than 50% of the perimeter of an electromagnetically coupled polygon.

Applicant further respectfully submits that Sonoda fails to teach or suggest at least one of the distinguishing features of new independent claim 39, namely, a loading structure including at least one conducting strip, wherein the at least one conducting strip is shaped as a space-filling curve comprising at least ten segments as claimed.

Applicant further respectfully submits that Sonoda fails to teach or suggest at least one of the distinguishing features of new independent claim 48, namely, at least one conducting surface having at least a portion that is a multilevel structure comprising a plurality of polygons, all of the plurality of polygons having at least four and the same number of sides, the plurality of polygons being generally identifiable by the free perimeter thereof as a geometrical element and projection of the exposed perimeters of the plurality of polygons defining the least number of polygons necessary to form a generally distinguishable element where polygon perimeters are interconnected, a plurality of the plurality of polygons being electromagnetically contact via capacitive coupling or ohmic coupling or ohmic contact to define a plurality of contact regions and wherein, for at least 75% of the plurality of electromagnetically coupled polygons, a contact region is less than 50% of the perimeter of an electromagnetically coupled polygon.

Significantly, Ross Robinson and/or others with a duty of candor and good faith in dealing with the USPTO did not base any arguments to overcome the '322 Patent (Sonoda) on any other language of new Claims 28, 39, or 48. Thus, Ross Robinson and/or those with a duty of candor understood that they were relying on the claim limitations copied from the '868 Patent, the '208 Patent, the '850 Patent, and the '822 Patent as a "point of novelty" to overcome the '322 Patent (Sonoda).

n. On April 4, 2007, in the prosecution of the application leading to the '762 Patent, Examiner Wimer issued a Notice of Allowance and Fees Due responsive, at least in part, to the December 27, 2006 response filed by Ross Robinson. Thus, upon receiving the Notice of Allowance, one or more individuals with a duty of candor and good faith in dealing with the USPTO, including without limitation Ross Robinson, understood that the claim elements in new Claims 28, 39, 48 that were copied from the '868 Patent, the '208 Patent, the '850 Patent, and the '822 Patent, and that formed the thrust of the argument to overcome the '322 Patent (Sonoda), were the primary reasons why new Claims 28-48 had been allowed.

o. In the Notice of Allowance of April 4, 2007, Examiner Wimer also indicated that a patent term adjustment of 479 days was appropriate under 35 U.S.C. §154(b). Thus, upon receiving this Notice of Allowance, one or more individuals with a duty of candor and good faith in dealing with the USPTO, including without limitation Ross Robinson, understood that the patent term of the '762 Patent would be extended for more than one year beyond the statutory twenty year patent term.

p. On July 17, 2007, Shoaib Mithani filed a Petition Under 37 C.F.R. 1.313(c)(2) to withdraw from issuance the application leading to the '762 Patent. In conjunction with this petition, Shoaib Mithani filed an Information Disclosure Statement. By this time, on July 17, 2007, each of the '868 Patent, the '208 Patent, the '850 Patent, and the '822 Patent had already issued.

q. None of the one or more individuals with a duty of candor and good faith in dealing with the USPTO in the application leading to the '762 Patent, including without limitation Stanley Moore, Ross Robinson, and Shoaib Mithani of Jenkins & Gilchrist P.C. (and later Winstead P.C.), Carles Puente Baliarda, and Jordi Soler Castany, ever disclosed

the '868 Patent, the '208 Patent, the '850 Patent, or the '822 Patent to Examiner Wimer in the application leading to the '762 Patent.

r. 37 C.F.R. §1.321 provides that a terminal disclaimer may be filed to obviate judicially created double patenting in a patent application. In this situation, the entire term, or any terminal part of the term, of a patent to be granted may be disclaimed. Moreover, any patent granted on that application shall be enforceable only for and during such period that said patent is commonly owned with the application or patent which formed the basis for the judicially created double patenting.

s. The failure to cite the '868 Patent, the '208 Patent, the '850 Patent, and the '822 Patent in the application leading to the '762 Patent is material because due to the identical or strikingly similar nature of the claims among these patents, as set forth above in subparagraphs (g)-(l), and because each of the '868 Patent, the '208 Patent, the '850 Patent, and the '822 Patent had already issued prior to the issuance of the '762 Patent, Examiner Wimer would have wanted to know of those other Fractus patents so that he could reject new Claims 28-48 for double patenting, such as for judicially created double patenting.

t. One or more individuals with a duty of candor and good faith in dealing with the USPTO in the application leading to the '762 Patent, including without limitation Ross Robinson, understood that Fractus S.A. commonly owned the application leading to the '762 Patent, the '868 Patent, the '208 Patent, the '850 Patent, and the '822 Patent; and further that there was a different inventive entity among these different Fractus patents and applications. Thus, these individuals knew or should have known that the application leading to the '762 Patent would be subject to a double patenting rejection in view of at least the '868 Patent, the '208 Patent, the '850 Patent, and the '822 Patent.

u. As a result of the double patenting rejection described above in subparagraphs (s)-(t), either new Claims 28-48 would have to be substantially amended, thereby changing the claim scope of issued Claims 1-21 of the '762 Patent, or a terminal disclaimer would have to be filed pursuant to 37 C.F.R. §1.321, which would shorten the term of the '762 Patent and require that each of the '762 Patent, the '868 Patent, the '208 Patent, the '850 Patent, and the '822 Patent would have to remain under common ownership by Fractus, S.A. in order for the '762 Patent to be enforceable.

v. One or more individuals with a duty of candor and good faith in dealing with the USPTO in the application leading to the '762 Patent, including without limitation Ross Robinson, understood the consequences of filing a terminal disclaimer to overcome a double patenting rejection, including without limitation the consequences outlined above.

w. On December 27, 2006, when Ross Robinson filed the response to Examiner Wimer's rejection, one or more individuals with a duty of candor and good faith in dealing with the USPTO, understood that each of the '868 Patent, the '208 Patent, and the '850 Patent had already issued and that, therefore, the disclosure of these other Fractus patents in the application leading to the '762 Patent would not lead to a mere "provisional" double patenting rejection, but rather that it would lead to an "actual" double patenting rejection.

x. Each of the '868 Patent, the '208 Patent, the '850 Patent, and the '822 Patent listed the Examiner that examined the corresponding application on its face. From this information available on the face of each issued patent, one or more individuals with a duty of candor and good faith in dealing with the USPTO in the application leading to the '762 Patent, including without limitation Ross Robinson, understood that the '868 Patent and the '208 Patent

were examined by Examiner Tho Phan; the ‘850 Patent and the ‘822 Patent were examined by Examiner Hoang Nguyen; and the application leading to the ‘762 Patent was being examined by a different examiner, Examiner Michael Wimer.

y. On October 18, 2007, in the prosecution of the application leading to the ‘762 Patent, Examiner Wimer issued a Notice of Allowance and Fees Due, and indicated that a patent term adjustment of 479 days was appropriate under 35 U.S.C. §154(b).

z. On May 18, 2007, five months prior to the mailing of the Notice of Allowance on October 18, 2007, the U.S. Court of Appeals for the Federal Circuit (the “Federal Circuit”) rendered its decision in *McKesson Information Solutions, Inc. v. Bridge Medical, Inc.*, 487 F.3d 897 (Fed. Cir. 2007). *McKesson* affirmed a district court finding of inequitable conduct on three separate grounds, including a finding of inequitable conduct by an attorney that failed to disclose a notice of allowance issued from a copending case in the prosecution of another application where such a disclosure could have given rise to a “conceivable” double patenting rejection, despite the fact that those applications were before the same examiner. The *McKesson* case garnered a lot of attention among lawyers and patent agents in the patent bar. One or more individuals with a duty of candor and good faith in dealing with the USPTO, including without limitation Stanley Moore, Ross Robinson, Shoaib Mithani knew or should have known about the *McKesson* case and that it required them to disclose the ‘868 Patent, the ‘208 Patent, the ‘850 Patent, and the ‘822 Patent to Examiner Wimer in the application leading to the ‘762 Patent.

aa. On November 8, 2007, Stanley Moore paid the issue fee and thereby allowed the ‘762 Patent to issue on December 25, 2007 with a purported increase in patent term of 479 days. Therefore, rather than disclose other Fractus patents, such as the ‘868 Patent, the ‘208 Patent, the ‘850 Patent, and the ‘822 Patent, that would have decreased the

patent term of the '762 Patent and impose other obligations on Fractus, S.A. regarding maintaining the commonality of ownership, one or more of those with a duty of candor and good faith in dealing with the USPTO instead withheld the '868 Patent, the '208 Patent, the '850 Patent, and the '822 Patent from Examiner Wimer and accepted a patent term increase of 479 days for the '762 Patent.

bb. As identified in the above subparagraphs, the '868 Patent, the '208 Patent, the '850 Patent, and the '822 Patent were highly material to the claims of the '762 Patent, at least as follows:

- **There were copied claim elements among the relevant Fractus patents:** Ross Robinson copied the identical or strikingly similar language of claims of the '868 Patent, the '208 Patent, the '850 Patent, and the '822 Patent into the new Claims 28, 39, and 48 of the application leading to the '762 Patent, and relied on this claim language in arguments to overcome the '322 Patent during prosecution.
- **Multiple different examiners examined the Fractus patents:** Examiner Wimer examined the application leading to the '762 Patent whereas Examiner Phan examined the applications leading to the '868 and '208 patents and Examiner Nguyen examined the applications leading to the '850 and '822 Patents.
- **The '868, '208, '850, and '822 Patents were withheld from the USPTO in the application leading to the '762 Patent:** One or more of the individuals owing a duty of candor and good faith to the USPTO in the application leading to the '762 Patent knowingly withheld the '868, '208, '850, or '822 Patents from the USPTO.
- **The '868, '208, '850, and '822 Patents are not cumulative of other references of record in the '762 Patent:** The '868, '208, '850, and '822 Patents are not cumulative to references already of record in the application leading to the '762 Patent because the issue of double patenting is specific to the claims of at least these U.S. Fractus patents.
- **The term of the '762 Patent should be reduced, not extended:** Had a double patenting rejection been properly made, the '762 Patent would not be entitled to a 479 day patent term extension. Rather, it would have a reduced patent term and Fractus would also be subject to other obligations regarding

common ownership of the '762 Patent, and the '868, '208, '850, or '822 Patents.

cc. As identified in the above subparagraphs, the intent to deceive the USPTO and Examiner Wimer in the application leading to the '762 Patent by one or more of the individuals with a duty of candor and good faith in dealing with the USPTO is also apparent based on at least the following pattern of conduct:

- **The '868, '208, '850, and '822 Patents were withheld from the USPTO in the application leading to the '762 Patent:** One or more of the individuals owing a duty of candor and good faith to the USPTO in the application leading to the '762 Patent knowingly withheld the '868, '208, '850, or '822 Patents from the USPTO despite the fact that: (a) these other Fractus patents were already issued and would likely lead to a double patenting rejection due to the copied claim language in the application leading to the '762 Patent; and (b) the Federal Circuit rendered its decision in *McKesson* during the prosecution of the application leading to the '762 Patent, and the *McKesson* case found inequitable conduct for failure to cite a notice of allowance from a co-pending application that could have conceivably been used in a double patenting rejection.
- **A patent term extension was taken despite the fact that a double patenting rejection would have led to a reduced patent term for the '762 Patent and an obligation that the '762 Patent remain under common ownership with the '868, '208, '850, and '822 Patents:** One or more of the individuals owing a duty of candor and good faith to the USPTO in the application leading to the '762 Patent knowingly took a 479 day patent term extension despite the fact that a double patenting rejection based on one or more of the '868, '208, '850, or '822 Patents would have led to a reduced patent term for the '762 Patent, and further obligations regarding maintaining common ownership with Fractus among these Fractus patents.
- **There were multiple opportunities to cite the '868, '208, '850, and '822 Patents in the prosecution of the application leading to the '762 Patent:** One or more of the individuals owing a duty of candor and good faith to the USPTO in the application leading to the '762 Patent had numerous opportunities to disclose the '868, '208, '850, or '822 Patents in the application leading to the '762 Patent during the nearly twelve months from December 27, 2006 when the copied claims were introduced as new Claims 28, 39, and 48, and December 25, 2007 when the '762 Patent issued.

dd. Accordingly, for at least these additional reasons, the ‘762 Patent is unenforceable due to inequitable conduct.

Those Having a Duty of Candor and Good Faith in Dealing with the USPTO Withheld The Puente Dissertation in the Prosecution of the ‘556 Patent and the ‘762 Patent.

176. The ‘556 Patent and the ‘762 Patent are unenforceable because Applicants and/or their patent attorneys and/or others substantively involved in prosecution before the USPTO knowingly withheld with an intent to deceive highly material information received in a related Fractus application as follows:

a. At different points in time, at least Joseph Sauer of Jones Day; Stanley Moore of Jenkins & Gilchrist (and later Winstead P.C.), and Shoaib Mithani of Jenkins & Gilchrist (and later Winstead P.C.) prosecuted the application leading to the ‘556 Patent (these individuals collectively referred to as the “Multiband Monopole Prosecution Group”).

b. The individuals in the Multiband Monopole Prosecution Group owed a duty of candor and good faith in dealing with the USPTO in the prosecution of the application leading to the ‘556 Patent.

c. At different points in time, at least Joseph Sauer of Jones Day, David Maiorona of Jones Day, Stanley Moore of Jenkins & Gilchrist (and later Winstead P.C.), Ross Robinson of Jenkins & Gilchrist (and later Winstead P.C.), and Shoaib Mithani of Jenkins & Gilchrist (and later Winstead P.C.) prosecuted the application leading to the ‘762 Patent (these individuals collectively referred to as the “Loaded Antenna Prosecution Group”).

d. The individuals in the Loaded Antenna Prosecution Group owed a duty of candor and good faith in dealing with the USPTO in the prosecution of the application leading to the ‘762 Patent.

e. Upon information and belief, one or more of inventors listed on the ‘556 Patent, individuals in the Multiband Monopole Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO was aware of the Puente Dissertation.

f. Upon information and belief, one or more of the inventors listed in the ‘762 Patent, individuals in the Loaded Antenna Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO was aware of the Puente Dissertation.

g. At least Carles Puente Baliarda was aware of the Puente Dissertation because he authored it.

h. At least individuals at Jenkins & Gilchrist were aware of the Puente Dissertation because Michael Maddox of Jenkins & Gilchrist cited the Puente Dissertation in another Fractus application leading to U.S. Patent No. 7,245,196.

i. Shoaib Mithani of Jenkins & Gilchrist (and later Winstead P.C.) of the Multiband Monopole Prosecution Group and the Loaded Antenna Prosecution Group also prosecuted the Fractus application leading to U.S. Patent No. 7,245,196 and should have been aware of the Puente Dissertation.

j. The Puente Dissertation was not cited in the prosecution of the application leading to the ‘556 Patent or the application leading to the ‘762 Patent.

k. The Puente Dissertation is material to the patentability of the claims in the ‘556 Patent because it anticipates or renders obvious claims of the ‘556 Patent.

l. The Puente Dissertation is material to the patentability of the claims in the ‘762 Patent because it anticipates or renders obvious claims of the ‘762 Patent.

m. One or more of inventors listed on the ‘556 Patent, individuals in the Multiband Monopole Prosecution Group, and/or others owing a duty of candor and good

faith in dealing with the USPTO withheld the Puente Dissertation from the prosecution of the application leading to the '556 Patent.

n. By intentionally withholding the Puente Dissertation from the application leading to the '556 Patent, one or more of inventors listed on the '556 Patent, individuals in the Multiband Monopole Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO sought to obtain allowance of claims that would not otherwise be allowable over the Puente Dissertation.

o. One or more of inventors listed on the '762 Patent, individuals in the Loaded Antenna Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO withheld the Puente Dissertation from the prosecution of the application leading to the '762 Patent.

p. By intentionally withholding the Puente Dissertation from the application leading to the '556 Patent, one or more of inventors listed on the '556 Patent, individuals in the Multiband Monopole Prosecution Group, and/or others owing a duty of candor and good faith in dealing with the USPTO sought to obtain allowance of claims that would not otherwise be allowable over the Puente Dissertation.

177. Based on the allegations in Paragraph 156 and 169-176 and their subparagraphs, incorporated herein by reference, the '762 Patent and the '556 Patent are unenforceable due to inequitable conduct of Applicants and/or their patent attorneys and/or others substantively involved in prosecution before the USPTO.

PRAYER FOR RELIEF

For these reasons, Samsung Telecommunications America, LLC respectfully prays for the following relief:

a. Declaratory judgment that Samsung has not infringed, contributed to the infringement of, or induced infringement of any claim of the '868 Patent, the '208 Patent, the '850 Patent, the '822 Patent, the '762 Patent, the '432 Patent, the '431 Patent, the '556 Patent, or the '782 Patent;

b. Declaratory judgment that the claims of the '868 Patent, the '208 Patent, the '850 Patent, the '822 Patent, the '762 Patent, the '432 Patent, the '431 Patent, the '556 Patent, and/or the '782 Patent are invalid;

c. Declaratory judgment that the claims of the '868 Patent, the '208 Patent, the '850 Patent, the '822 Patent, the '762 Patent, the '432 Patent, the '431 Patent, the '556 Patent, and/or the '782 Patent are unenforceable due to inequitable conduct;

Samsung further respectfully prays for the following relief:

e. Judgment against Fractus dismissing the Second Amended Complaint and denying with prejudice all relief requested in Fractus' Second Amended Complaint and its prayer therein, such that Fractus takes nothing;

f. Judgment that this case is an exceptional case under 35 U.S.C. § 285 and/or other applicable laws;

g. Judgment awarding Samsung its costs and attorneys' fees; and

h. Judgment awarding Samsung such other relief the Court deems just, equitable, and proper.

JURY DEMAND

Samsung Telecommunications America, LLC demands a trial by jury on all issues so triable.

Date: February 24, 2010

Respectfully submitted,

/s/ Neil P. Sirota, with permission by
Michael E. Jones

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CERTIFICATE OF SERVICE

I hereby certify that all counsel of record who have consented to electronic service are being served with a copy of this document via the Court's CM/ECF system per Local Rule CV-5(a)(3) on this the 24th day of February 2010.

/s/ Michael E. Jones